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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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EASTER HOLIDAYS.

In consequence of the Easter Holidays the offices of THE CHEMICAL AGE will be closed from Thursday evening, April 14, to Tuesday morning, April 19.

Fuel Research Progress

DR. LESSING'S review of the international conference on fuel problems held last autumn at Pittsburgh brings out certain conclusions well worth noting. The first is that industrial research in the United States has reached a high level, both quantitatively and qualitatively, and is contributing in no small degree to the remarkable prosperity of the country. The second is that the trend of present-day research into the fuel problem is towards the conversion of coal into oil and the application of solid fuel in the powdered form. The progress of ideas in both these directions has of late been rapid. Perhaps the most suggestive point of all is the possibility of grafting the three processes of Bergius, Fischer, and Patart on to the ordinary gasworks routine. Dr. Bergius at Pittsburgh demonstrated that his plant might be combined with the normal gasworks or coke oven plant, the coke being converted into water gas and hydrogen and the final products

being oil and gas of high calorific value. Professor Fischer showed the possibility of obtaining solid, liquid, and readily liquefiable hydrocarbons and the production of a gas that could be used as ordinary town's gas alone or in combination with coal gas or water gas. Under General Patart's process the special water gas required for alcohol synthesis was to be taken from the ordinary water gas generator and the residual gases after removal of the alcohol returned to the gas mains. Grafted in any of these ways on to existing gasworks operations, the processes may be brought into use with obvious economies, and the creation of a series of competitive interests avoided. If this idea is sound, the gas industry has an opportunity of linking itself up in the closest way with developments in the utilisation of coal that amount, in Dr. Lessing's words, to the introduction of a new era.

Meanwhile, particulars of new attempts to commercialise the principle of low-temperature carbonisation continue to be made public. Two systems have been publicly referred to this week. The first is a process worked out by a Manchester engineer, Mr. Charles Turner, and taken up by a company called the Comac Oil Co., Ltd., which has laid down plant at Airdrie and at Coalburn. The capacity of the plant is ten tons of coal per day, and the yield is stated to be about seven tons of smokeless fuel and 290 gallons of crude oil. The coal is steam-cooked in a retort from which the vapours pass through a series of condensers of different temperatures, which resolve it into oil. The coal residue in the retort provides the smokeless fuel. The process is said to be suitable for the treatment of oil shales; experiments with Norfolk shale yielded 25 gallons of oil per ton, and with Lanarkshire shale 80 gallons per ton.

Another process to which publicity was given this week is that of Mr. N. H. Freeman, a London chemist, and is described as the Freeman Multiple Retort system. This again "is expected in time to revolutionise the coal industry." The coal is placed in vast receptacles and ground down—which we take to mean pulverised. Heat is applied underneath, the degree of temperature being indicated by an electrical device, which is said to be "the secret of the process." A crude oil is obtained and the residue of the coal is converted into gas for the generation of cheap electricity—so cheap, in fact, that "six times the amount of power" usually obtained is derived from every pound of coal. The technique of the description is not too clear, and with reserve we give the claims as published. It is stated that the Government Fuel Research Department "have reported very favourably on the process," and that in a special investigation "motor spirit, naphtha, burning oil, gas oil, lubricating oil, tar acids, and tar bases were distilled from a ton of

South Wales coal"—which does not really carry us very far. As in the other case, this process is said to be suitable for the treatment of shale, and reference is made to an Australian syndicate which is taking it up. Whatever ultimate commercial results may accrue, these schemes all indicate the keen attention that is now being concentrated on the more scientific and profitable utilisation of coal.

National Finance

THERE are two ways of looking at the problem of national finance, which will loom so large when Mr. Churchill introduces the Budget on Monday. One may think, on the one side, only of the difficulties of the State in getting together the money for all the many purposes that are for the moment considered to come within the normal functions of government, or, on the other, one's attention may be concentrated on the difficulties, and the wonderful ability with which they have so far been surmounted, of the business men who have to find all the money. It is, of course, a fact, all too little realised, that almost the whole of this huge total of public expenditure falls upon the shoulders of industry. The political world and the business world are widely separated in methods and thought, in conduct, and, indeed, in manners. The business man generally thinks it wise to be polite to those who pay his accounts. The politician adopts another method. He talks of capitalists and profiteers, he reviles the merchants and the middlemen, and he never ceases to explain how he would arrange trade and industry on a better basis. Then he expects trade and industry to produce more and more millions at his bidding. It would seem more natural if Parliament spent its time in passing resolutions of thanks to all the responsible industrialists who have accomplished the miracle of finding the money.

The deficit of £36,000,000 which the Chancellor has to explain on Monday amounts in itself to half the total revenue of the country when most of our readers were born. The figure is unprecedented; so large an error in calculating the national income and expenditure has never before been made. The most significant item in the account is the drop in Income Tax of some £20,000,000. The Income Tax of this year is assessed upon a three-years average, and the amount payable, within very narrow margins, was known to Somerset House a year ago. The deficit does not, therefore, represent any new circumstance. The figures of the coal strike period have not yet come into account. The trouble is simply inability to pay. All the pressure of the collectors has been ineffective to produce money that was simply not there. Nothing more serious has happened in the history of British taxation. We have always been able to stand higher taxes than any other nation, and we have always paid them. We sometimes grumble, but we never fail to foot the bill. This year, however, for the first time, we have definite evidence of inability to pay, a truly serious situation which should help to bring about that complete revision of our political ideas which is so long overdue. Prosperity and a high standard of living are to be secured by the setting up of the business man and the setting down of the bureaucrat, and in no other way.

The Mond Carbonyl Process

IN view of the numerous applications received from time to time by the Mond Nickel Co., Ltd., for particulars of their method of refining nickel from Canadian ore by the Mond Carbonyl Process, an interesting chart has recently been prepared, which shows in diagrammatic form the operations conducted in Canada and the operations conducted in Great Britain. The former covers the stages from the nickel-copper ore, mined in Ontario, to the production of nickel-copper Bessemer matte. The British operations cover the stages by which the matte is converted into Mond Nickel pellets, 99.5 to 100 per cent. free from cobalt. There is also a detailed table describing the type, general properties, and uses of the company's products, such as ferrous nickel alloys, pure nickel (malleable), nickel electrodeposition, non-ferrous nickel alloys, and nickel salts.

The chart is published by the Research and Development Department of the Mond Nickel Co., Victoria Station House, London, S.W.1, and measures 48 in. (122 c/m) by 36 in. (91 c/m). We are informed that the department will be glad, on hearing from any of our readers, to forward one or more charts, together with such additional copies as may be desired of a reduced-size facsimile of the chart.

The Progress of the N.P.L.

CHEMISTS must be looking forward very eagerly to the report of the Chemical Laboratory at Teddington. Until it appears they must possess their souls in patience, and, meanwhile, very considerable interest attaches to the report of the National Physical Laboratory. This is undoubtedly in the foremost rank of scientific publications. In the report for the year 1926, which has just been issued, the section which appears over the signature of Dr. Rosenhain offers striking evidence of the versatility of the department of metallurgy and metallurgical chemistry, of which he is chief. In the main, the work described is of purely metallurgical interest, but certain matters mentioned in it deserve the attention of the chemist.

The trend of modern chemical engineering is shown by the research which is being carried on at the laboratory on alloys for use at high temperature. The principal work in this investigation consists of the study of nickel-chromium alloys intended for use in this way. Considerable advances appear to have been made in regard to the production of pure beryllium. Among the methods of purification of the electrolytically prepared metal which have been tried is that of distillation, or sublimation, in the high-frequency furnace. It has been found fairly easy, states the report, to sublime the metal, and in this way it is freed from contamination with iron and carbon. This is one instance (and others abound throughout the report) of the striking advances in technique which have occurred in the last few years. An endeavour is being made to produce beryllium in a state of the highest possible purity by an entirely new process. The report on beryllium concludes with a statement which is a remarkable commentary on the present attitude of industry towards pure research. "It is interesting to note that the whole question of

beryllium has begun to attract a considerable amount of attention in this country and abroad. While as yet the metal is not available in sufficient quantities, nor in a form suitable for practical application, the high promise of its possibilities is receiving recognition, and any substantial progress made in connection with it is likely to receive rapid application." The production of very pure iron and chromium are also under investigation. In a very different direction from the above, the department is carrying out some important research on dental alloys and amalgams.

For the Aeronautical Research Committee work is being done on improving the method of measurement of the viscosity of cuprammonium solutions of cellulose, and in correlating the fall in viscosity of solutions of cotton fabric, due to exposure of the fabric to sunlight, with the loss in strength and the changes in oxy-cellulose content as indicated by reducing power and by dye absorption. The method of detection of the modification of cotton by light is so sensitive that it is intended to attempt to determine by this means the distribution in the solar spectrum of the power of deteriorating cotton. Further work has been done on the waterproofness test for air-porous waterproof fabrics.

Potash from the Dead Sea

MENTION has previously been made of the possibility of turning the salts of the Dead Sea to commercial account, and the idea, which at first sounded rather romantic, begins to look more and more practicable. Over a year ago we drew attention to the invitation of the Colonial Office and the Government of Palestine to firms interested to tender for a concession to exploit the property, and in view of the magnitude and technical difficulties of the project it is not surprising to hear that the tenders have not been numerous. They have been reduced to two or three, and most people will readily fix on the organisation most likely to make a success of such a project. The Colonial Office committee which investigated the possible commercial utilisation of Dead Sea brine for the production of potash and other salts came to the conclusion that it might be possible to extract 100,000 tons of potash a year from the Dead Sea brine, in addition to substantial quantities of bromine, common salt, magnesium, and caustic potash. The opening of a new British source of potash would be a matter of first-rate importance in itself, as it would make this country and the Dominions largely, if not wholly, independent of the German-French monopoly. Such a scheme has an Imperial as well as a purely commercial aspect.

The purely technical operations involved in the treatment of the brine, the construction of plant, and transport facilities could obviously only be handled by an organisation with ample financial, technical, and commercial qualifications, together with extensive experience in large-scale work. Experience, however, is not entirely lacking in such matters. Recently we drew attention to the American experiment of fitting up a ship to extract bromine from sea water—an experiment which attained a certain measure of success. The present would seem to be a much more feasible proposition. Then there is the case of the Magadi

Soda property in South Africa, where the raw material is found almost in the natural state, and ordinary solar evaporation is one of the principal processes. It is essentially the function of the chemist and engineer to attack supplies of raw materials, the larger the quantity the better, and to make them commercially available, and this scheme impresses the imagination as one with unlimited possibilities, if handled with the necessary boldness and technical capacity.

The Bovis Case

A VERY important piece of public service has been performed by Bovis, Ltd., in connection with the protracted litigation which came to an end on Monday. The judgment in the case, like all legal judgments, leaves a good deal of confusion and uncertainty behind it, but the broad facts should be known to every member of a trade association, and the general principles should be widely discussed and understood. Bovis, Ltd., resigned from their trade association and proceeded to pay rather better wages than the rates arranged by the trade as a whole. Upon this they were advertised in the trade circular as being "in wage-rate default." The organised building trade thus claims not only to settle minimum rates of wages but also maximum rates, and further claims the right to boycott any firm that declines to conform to this position. After two long trials, damages amounting to £25 have been awarded to Bovis, which means, we suppose, that the Courts uphold the principle behind their action, but we doubt whether damages of £25 will be sufficient to tempt many others to follow along the same lines.

Books Received

- THE MICROBIOLOGY OF CELLULOSE, HEMICELLULOSES, PECTIN AND GUMS. By Dr. A. C. Thaysen and H. J. Bunker. London: Oxford University Press, Humphrey Milford. Pp. 363. 25s.
- FOURTH REPORT OF THE JOINT BENZOLE RESEARCH COMMITTEE OF THE NATIONAL BENZOLE ASSOCIATION AND THE UNIVERSITY OF LEEDS. London: The National Benzole Association. Pp. 248.
- A STANDARD MANUAL OF BREWING AND MALTING AND LABORATORY COMPANION. By John Ross-Mackenzie. London: Crosby Lockwood and Son. Pp. 412. 45s.
- REPORTS OF THE PROGRESS OF APPLIED CHEMISTRY. Vol. XI.—1926. London: Society of Chemical Industry. Pp. 724. 7s. 6d. to members, 12s. 6d. to non-members.
- DIRECTORY OF PAPER MAKERS OF THE UNITED KINGDOM. 1927. London: Marchant, Singer and Co. Pp. 268. 5s. 6d.
- GALLIO, OR THE TYRANNY OF SCIENCE. By J. W. N. Sullivan. London: Kegan Paul, Trench, Trübner and Co., Ltd. Pp. 96. 2s. 6d.
- METHODS OF ANALYSIS OF COAL. By the Department of Scientific and Industrial Research. London: H.M. Stationery Office. Pp. 36. 9d.
- GOTTLOB'S TECHNOLOGY OF RUBBER. By Joseph L. Rosenbaum. London: Maclaren and Sons, Ltd. Pp. 350. 42s.

The Calendar

Apr. 11	Ceramic Society: Annual Meeting. 7.30 p.m.	North Staffordshire Technical College, Stoke-on-Trent.
12	Institution of Petroleum Technologists: General Meeting. 5.30 p.m.	House of the Royal Society of Arts, Adelphi, London.
13	Electroplaters' and Depositors' Technical Society: "Strains in Electrodeposited Metals." R. H. T. Barklie. 8.15 p.m.	Northampton Polytechnic Institute, St. John Street, London, E.C.1.
14	Institute of Chemistry (Liverpool Section).	St. George's Restaurant, Redcross St., Liverpool.

The Position of the Magnesite Industry

By A. W. Comber, F.I.C., Assoc.Inst.M.M.

MAGNESITE, native carbonate of magnesium, occurs in many parts of the world and in deposits which are often of considerable extent. The mineral varies according to locality, both in its degree of purity and in its physical nature. Magnesite may be occasionally dolomitic, with a high content of lime, or with an increasing proportion of ferrous carbonate it may approach in composition the mineral breunnerite, which is a magnesium-iron carbonate. It may be coarsely crystalline, like the commercially important magnesites of Canada and Central Europe, or chalklike and compact, as in the Indian, Greek, and Californian formations. Apart from a limited demand for the mineral in its natural form, magnesite has to undergo calcination before reaching the market, and this treatment is designed to give one or other of two results.

Deadburnt Magnesite

This is the product of the most advanced stage of calcination, but it can more conveniently be considered first. If a relatively pure magnesite be exposed to a temperature of approximately $1,700^{\circ}\text{C}.$, the first effect is chemical decomposition, with evolution of carbon dioxide. This is followed by shrinkage and incipient fusion of the charge. There is an increase in specific gravity, and if the temperature be taken above $1,700^{\circ}\text{C}.$, as may be done in the electric furnace, a hard flinty mass with a specific gravity of about 3.65 is formed, which conforms with the characteristics of the mineral periclase, a natural oxide of magnesium. In practice and for a magnesite with a low iron content, the temperature does not exceed $1,700^{\circ}\text{C}.$, and may be not much over $1,600^{\circ}\text{C}.$ If, however, magnesite containing 2 or 3 per cent. of iron, which generally exists as carbonate, is used, then sintering will take place at as low a temperature as $1,400^{\circ}\text{C}.$, without any marked effect upon the special properties of the product.

Calcined magnesite in this form is known as "deadburnt" and possesses such power of resistance to the influence of heat and disintegrating chemical action that it has very special value as a refractory material. Particularly in connection with the open hearth steel process, but generally for all high temperature furnace operations, deadburnt magnesite has been in increasing demand since its first introduction, about forty years ago. Its value has been definitely established and the extent of the call for it is directly dependent upon the state of prosperity of the metallurgical and allied trades. European requirements for refractory magnesite are chiefly met from the supplies available in Austria and Hungary. These occurrences of the mineral are in the form of very large lenticular masses, which appear to be limestone replacements. The lenses are generally found in association with dolomite, and the proportion of lime in the magnesite varies between wide limits. The iron content is high, and may range from 4 to 12 per cent. of ferrous carbonate. The presence of these constituents tends to limit the use of the magnesite except as a refractory. Austrian magnesite is deadburned either in shaft or rotary kilns. Brown coal, which is found in abundance locally, is used as fuel, the consumption being from 6 to 7 cwt. per ton of yield.

As already stated, the presence of iron enables the magnesite to be deadburned at a comparatively low temperature, without any serious depreciation of its refractory powers. Mining is simple, the deposits are fairly accessible, and calcination costs are low, so the purer magnesites from India and Greece are unable to offer effective competition for this particular application of the product among consumers in Europe. During the war, however, the supplies from Central Europe were cut off and British needs were met from the latter two countries. Modifications in kiln design and practice, and also in methods of using the material, will no doubt appear from time to time, but in a general sense the deadburnt magnesite industry is in a settled position, and its progress should be one of steady expansion.

Caustic Magnesite

The other of the two effects mentioned above as resulting from calcination occurs when the operation takes place at a temperature of about $800^{\circ}\text{C}.$ In this case, there is chemical decomposition, together with certain physical changes, too obscure to be apparent, but which have to be assumed for theoretical reasons. Most of the carbon dioxide is ex-

pelled and caustic magnesite or magnesia is left as a residual product. In this form, the material, which is also known as calcined or plastic magnesite, has no special refractory value, but under certain conditions it has marked and interesting cementitious properties, which will be discussed later. Although calcination to this stage may at first sight appear to be a simpler operation than deadburning, in actual practice it presents a series of problems which have not yet been completely solved. In deadburning there is no risk of overburning, and underburnt material is easily recognised and may be sorted out. Small variations of temperature, when calcining for the caustic product, may result in underburnt or overburnt material, or both, and the different forms will not be readily distinguishable in the yield. Overburning can take place at a temperature considerably below that needed for deadburning. The conditions essential to the successful low temperature calcination of magnesite are beginning to be appreciated, but their significance is still far from being fully understood and they can only be referred to here and in general terms, as of primary importance.

It is known that free lime (CaO) has a harmful effect in the applications of caustic magnesite, whereas the presence of a few units per cent. of calcium carbonate is only of negative importance, as this acts merely as an inert diluting agent. The calciner, therefore, should have exact knowledge of the temperature and pressure at which he operates his kiln, so that he may obtain practically complete dissociation of the magnesium carbonate before the calcium carbonate begins to decompose. In precision of kiln control, as well as in the scientific study of the problems which have arisen in connection with the industrial applications of caustic magnesite, the biggest advances have undoubtedly been made in the United States.

Method of Calcination

Most of the magnesite, other than deadburnt, which reaches this country, is shipped either from India or Greece, after calcination in shaft kilns. These kilns differ in detail, but the general principles of their design are much the same. In its simplest form, a kiln of this type consists of a masonry shaft, suitably lined with firebricks, which may be of deadburnt magnesite. There is a separate gas producer, with coal or coke as prime fuel. Gas-firing ensures freedom from ash contamination, and also helps toward better control of kiln temperature than in the older method where solid fuel is mixed with the charge. There may be natural or mechanical draught. Raw magnesite is charged into the top of the kiln and the calcined product withdrawn at the base. As a rule, hand-sorting of the yield is necessary. Fuel consumption varies, but is usually 5 to 6 cwt. per ton of product. These kilns rarely have provision for the collection of the carbon dioxide, and calcination is therefore done at or near the mines. The loss on burning is nearly 50 per cent. of the weight of the charge, and the futility of paying for transport on this potential waste is obvious. Occasionally, however, the calcining plant is designed to conserve the carbon dioxide. This can be done with both shaft and rotary kilns, but elaborate purification plant is needed, because of contamination with fuel gases. Better practice is to use some form of retort furnace, whereby the magnesite is heated in closed containers arranged in groups and gas-heated. This method has the disadvantage of a small unit yield of calcined product, but, on the other hand, permits of close thermal control. It is possible that with a better understanding by calciners of the need for precise adjustment of kiln conditions the small unit system will come more generally into use. This, however, will be in some measure dependent upon a more extended field for the industrial employment of carbon dioxide.

When mixed with water caustic magnesite will set to a hard mass, but the mechanical strength of this is negligible. About sixty years ago, Sorel, a French chemist, following up a series of experiments with zinc oxide and zinc chloride, discovered that if magnesium oxide were mixed with a solution of magnesium chloride, a cement of exceptional strength was formed, and this strength was not seriously impaired even when the mixture carried a large proportion of inert aggregate. From Sorel's experiment has developed the modern jointless

or composition floor—first in Germany and Austria, then in the United States and, during the last twenty-five years, in this country. These floors are laid in the plastic state, and consist of a mixture which is essentially caustic magnesite, sawdust or wood flour, and magnesium chloride solution. Powdered silica is a desirable addition, also some talc or asbestos to assist trowelling, and mineral colouring matter for appearance.

Magnesite floors combine most of the advantages of cement, wood, and linoleum, and their virtues are set out graphically and generally quite fairly in the publicity matter of the floor-laying firms. But, as most floor-layers and some architects realise, now and then a failure happens and a floor buckles or crumbles or cracks, for some unknown reason. The trouble may arise through the use of a faulty component in the mix, and in such a case it will be probably, although not necessarily, the magnesite. Until the calciner can produce and guarantee a standardised product there will always be this risk. On the other hand, there may be bad workmanship, a mix may be wrongly proportioned, or it may contain unsuitable components for the job. The flooring business is still in its youth and, unfortunately, rule-of-thumb methods operate to a large extent. But when the calciner recognises his responsibilities and the floor-layer realises that to ensure certainty of result every one of his operations must be upon a technically sound basis, the prejudice against composition floors which is certainly existent, and occasionally justified, must disappear. In this country, the use of magnesite compositions in structural work is at present almost entirely restricted to floors. In the United States, 75 per cent. of the consumption of caustic magnesite is used for wall coverings alone, and this proportion probably represents 40,000 tons per year. Magnesite mixtures are used for exterior work in the form of stucco and on interior walls as plaster and for decorative purposes. On this side of the Atlantic this use of the material still awaits a fair trial.

An early extension of the use of magnesite for flooring work in Germany was the manufacture of slabs and tiles. This business has successfully withstood the test of over twenty years of establishment. A suitable mixture is hydraulically compressed in multiple moulds. About fifty sheets, the usual size being one metre square, are pressed at an operation, the thickness of the finished sheet being varied by design, and ranging from one-half to three-quarters of an inch. As the mixture contains a large proportion of wood, the plates may be easily sawn up, and this is the usual practice for the production of small tiles down to about six inches square. It is interesting to note that the raw magnesite for this purpose is imported and calcined at the works. The carbon dioxide is conserved and marketed. Here again is a promising field for the use of magnesite in this country, which only awaits enterprising development. There are many other uses to which caustic magnesite may be put. For instance, special mixtures have been made up which have given infinite resistance under electrical insulation test. Magnesite cupels for assay work are already known, and so are magnesite laggings for heat insulation. The German patent records are rich in novel ideas for its application. But in this country, during the next few years, the big advance should be in the extended use of magnesite compositions for building purposes. Their triple claim—*aesthetic, hygienic, and economic*—cannot be overlooked, directly a standard of assured uniformity of result is attained and recognised. It is essential, however, that quality control of all mix components should be far more definite than hitherto, and also that the processes and methods of application should be based upon scientifically sound principles, and no longer worked in the haphazard manner which has not yet been altogether outgrown.

Bristol Chair of Physical Chemistry

DR. W. E. GARNER, reader in physical chemistry at University College, London, has been appointed professor of physical chemistry in the University of Bristol, in succession to Professor J. W. McBain, and will take up his duties at the beginning of next session. Dr. M. W. Travers, F.R.S., has been appointed to a fellowship in applied physical chemistry in the University, and it is recommended by the council that the title of honorary professor be conferred upon him. Dr. Travers was formerly professor of chemistry in University College, Bristol, which was subsequently raised to the status of a university.

Laboratory Tests of Lubricating Oil

Discussion by Chemical Engineering Group

AT a second joint meeting of the Chemical Engineering Group and the Institution of Mechanical Engineers, in London, on Friday, April 1, a paper entitled "Lubricating Oils—Laboratory Tests in Relation to Practical Results," was read by Messrs. A. G. Marshall and C. H. Barton. Mr. F. Heron Rogers, chairman of the Chemical Engineering Group, presided.

As a result of research into the practical meaning of common laboratory tests for lubricating oils, the authors of the paper concluded that:—1. There was no substantial benefit to be derived from compounding oil to improve the "oiliness." 2. Although the formation of decomposition products in service was undoubtedly an important factor in lubricating oil quality, the laboratory tests at present applied did not evaluate that factor correctly. 3. No justification was apparent for the judging of oil by viscosity changes above 70° F. The facts were reported as a contribution to the general discussion of lubricating oil quality which was going on at the present time, and if they seemed largely negative in nature, this was only because laboratory development had gone too far without reference to the engine. No progress could be made at the present stage along purely laboratory lines without constant control by practical, scientifically observed trials on actual engines.

Discussion

Dr. W. R. ORMANDY said there were a number of points which anybody connected with the study of oils, particularly in their relationship to utilisation in crankcases, would require to consider very carefully before they would whole-heartedly agree with all the deductions that were made by the authors. Dealing with the question of oiliness, the authors had categorically stated that oiliness did not matter, even if it existed. It was possible, however, to bring forward hundreds of examples to prove that oiliness was important and that it did exist. Sir William Hardy and also Southcombe had demonstrated beyond all doubt that the material which gave the oiliness was the presence of fatty acids, the polar bodies, and the authors would have achieved all that was required in the direction of giving the necessary amount of oiliness by the use of 0.7 per cent. of oleic acid with the mineral oil, without tying up their results with the possible effects due to the decomposition of weird compounds such as whale oils.

Mr. J. H. HYDE (National Physical Laboratory) said that if we were to accept the evidence given in the paper we must believe that experiments in a laboratory gave no indication of the tendency of oils to form deposits in the cylinders of petrol engines. That was a most important conclusion and, if accepted, involved an alteration of the tests usually employed. The value of the paper as a contribution to our knowledge of lubricants would have been very much enhanced if the authors had been able to suggest some tests which should be used. The paper professed to draw a comparison between laboratory tests and practical tests, but in his opinion the practical tests which the authors had made were in themselves laboratory tests.

Mr. HAROLD MOORE said that as regards the point made by the authors that certain of their tests in relation to their oxidation results indicated that laboratory tests did not indicate what might happen under working conditions, he would agree with this from his own experience as long as the conditions in the engine trials were not the same as obtained in actual practice. Were the trials more closely to approach the conditions under which oil had to operate in an actual engine in service, viz., in which the oil remained in the crankcase for 6 or 12 months and without very much full load running, although the oil would be at a high temperature for comparatively long periods, giving ample opportunity for oxidation, then he believed the asphaltic figures quoted by the authors would begin to have very serious effects on the practical behaviour of the oils in the engine. At the same time, the oxidation figures would begin to have an effect on the amount of carbon formed on the piston top, and he was one of those who, with Dr. Ormandy, believed in viscosity curves and the importance of the sludge test and the Air Board oxidation test.

Mr. R. Redgrove, Mr. T. H. Adams, and Mr. H. D. Nickinson also took part in the discussion.

The Pittsburgh Fuel Conference

Impressions of Dr. Lessing

DR. R. LESSING, who attended the International Conference on bituminous coal at Pittsburgh, November 15 to 18, 1926, gave some impressions of the proceedings at a meeting of the London Section of the Society of Chemical Industry on Monday.

In America, Dr. Lessing said, industrial research had reached a high order, both quantitatively and qualitatively, and was contributing in no small degree to the phenomenal prosperity of the country. The trend of present-day thought in fuel matters showed a distinct bias towards the conversion of coal into oil and the application of solid fuel in powdered form. That America, the land of prolific petroleum production, should show such striking interest in the production of oil from coal was attributed to the enormous growth in mechanical transport, the consumption of motor fuel being now so large and so rapidly increasing that the problem of procuring future supplies was a very serious one, even when allowance was made for a large addition by the cracking of heavy oils.

Linking Up with Gasworks

Not the least interesting feature of the papers on the liquefaction of coal by Dr. Bergius, Professor Franz Fischer, and General G. Patart was the suggestion that the processes of these three inventors should be grafted on to the ordinary gasworks routine. In the case of Dr. Bergius, he showed that a Bergius plant might be combined with the ordinary gasworks or coke ovens. The coke produced would be converted into water gas and hydrogen, and the final products of the conversion would be oil and gas of high calorific value. Professor Fischer, who worked on the basis of the synthesis of petroleum products from water gas under atmospheric pressure, showed the possibility of obtaining solid, liquid, and readily liquefiable hydrocarbons, and the production of a permanent gas which had a high calorific value which could be used for ordinary town supply alone, or in admixture with coal gas or water gas. In the case of General Patart's process for the catalytic synthesis under pressure of alcohols from water gas, the water gas of special composition required for alcohol synthesis was to be taken from the ordinary water gas generator, whilst the residual gases after removal of the alcohol were returned into the ordinary gas mains. A series of papers were delivered on powdered coal, and some account was given of the high steam pressures now being made use of in the United States. Stress was laid on the manner in which manufacturing and industrial firms in America subscribed to research, particular reference being made to grants of 250,000 dollars each from the Universal Oil Products Co. and John D. Rockefeller, which had enabled an extensive programme of research on petroleum to be carried out by the American Petroleum Institute.

Discussing the problem of low temperature carbonisation of solid coal as distinct from powder, Dr. Lessing said that this agitated the mind of American fuel technologists no less than that of their European confrères, a dozen papers on the subject being presented to the Conference. Contrary to the opinion held in some quarters that the provision of a smokeless fuel was of particular interest only to this country on account of the open domestic fire peculiar to the British home, it was found that this desideratum applied to America with equal force. It was true that domestic heating appliances there were of a less smoke-producing kind, but the happy circumstance that anthracite or hard coal was available in enormous quantities had brought about the preferential use of smokeless fuel, at any rate in the Eastern States. The high market value which this commodity commanded had created a desire among the producers of bituminous coals and particularly those of the Middle West to enhance the value of their product by converting it into a robust smokeless fuel and incidentally recovering by-products. As a large section of the American public had been educated to appreciate the advantages of smokeless fuel, the problem was perhaps an easier one there than in this country. As far as coal tar was concerned, the series of papers presented unanimously condemned the inadequate utilisation of coal tar in America. A large portion of coke oven tar was burned in steelworks, although according to one author a preliminary extraction of tar acids would be remunerative, whilst large quantities of tar were converted into tar coke in discarded beehive ovens.

In conclusion, Dr. Lessing stated that the Conference proved an unqualified success, and the general tenor of the contributions gave weight to the opinion that we were on the threshold of a new era in the utilisation of coal.

Accessory Biochemical Agents

Lecture by Professor Ling

A MEETING of the Nottingham Section of the Society of Chemical Industry was held on Wednesday, March 30, at University College, Dr. E. B. R. Prideaux in the chair, when Professor A. R. Ling gave a lecture on "Accessory Agents in Biochemical and Physiological Reactions."

Professor Ling referred to the more important recent work on hormones, vitamins, and enzymes. These, he said, were carbon compounds, some containing nitrogen, phosphorus, and sulphur, together with mineral matter. Hormones seemed invariably to contain nitrogen and sometimes sulphur; vitamins, as far as chemically investigated, contained only carbon and hydrogen; enzymes, at one time thought to contain protein as an essential constituent, had been obtained free from protein, but none had been obtained free from nitrogen. Hormones appeared to be comparatively simple substances and two of them at least had been obtained synthetically, whilst there was great hope that others would be made in the laboratory. Of vitamins, it was too early to speculate what the chemist might do in regard to producing them *in vitro*, but here it would seem that by the application of certain forms of energy, *e.g.*, ultra-violet light, on organisms and their foods, one at least of these obscure substances might be produced. Enzymes would probably defy the chemist in his efforts to produce them *in vitro*, and here again they must look to the physicist for help.

Hormones

Hormones would appear to be definite chemical entities. Bayliss and Starling observed in 1904 the manner in which the pancreas was excited to activity, this activity being due to some chemical agent belonging to a class of substance some of which were previously known. Hormones were produced in one organ and carried by the blood stream to another, on which their effect was manifested. Characterising them by the property of serving as messengers by which the activity of certain organs was co-ordinated with that of others, Hardy proposed the name hormone (I arouse to activity). They might be regarded as a special class of drugs. The hormone of the suprarenal gland, adrenalin, was first obtained crystalline by Takamine (1901), whilst Aldrich, Pauli, and Jowett showed that it had a comparatively simple constitution. It was first synthesised by Stolz from catechol in 1903. The hormone of the thyroid gland, thyroxine, had recently been synthesised by Harington and Barger in more than one manner and shown to be β -[3:5 diiodo-4-(3':5'-diiodo-4-hydroxyphenoxy)] phenyl- α -aminopropionic acid.

The hormones of the pituitary gland and of the endocrine gland of the pancreas (insulin) were also dealt with and the work of Carr was described. It was pointed out that adrenalin, thyroxine, and the hormone of the pituitary gland acted in the opposite direction to insulin, which promoted the storage of sugar as glycogen in the liver and depleted the blood of sugar. In normal health a balance existed between the first three named hormones and insulin.

Vitamins and Enzymes

The lecturer then dealt with vitamins, five of which were now known and described. He mentioned the work of Drummond on the isolation of vitamin D from cod liver oil and the production of this vitamin by irradiation of certain sterols with ultra-violet light (Rosenheim, Webster, and Drummond). Dealing with enzymes, the lecturer said that these were substances or mixtures of substances in the presence of which a reaction capable of proceeding slowly could be accelerated. He described Robison's work on ossification and dentition by phosphoric esterase present in bone, which brought about the deposition of calcium phosphate from calcium hexose phosphate. The lecturer drew attention to the fact that the alcoholic fermentation of sugars had been shown by Harden to take place through the medium of hexose phosphate, and suggested that the formation of polysaccharides, such as starch, glycogen, etc., took place through the medium of hexose-phosphates.

Oil and Colour Chemists

Annual Dinner of Association

THE ninth annual dinner of the Oil and Colour Chemists Association was held at the Hotel Cecil, London, on Wednesday March 30, Mr. C. A. Klein (president) being in the chair.

Dr. E. F. ARMSTRONG, F.R.S., proposing "The Oil and Colour Chemists Association," said that although it was discovered 500 years ago that linseed oil would carry a pigment and make a paint, nobody had yet discovered what linseed oil really was. There was thus considerable work awaiting the Research Association, although in the list of problems to be tackled he did not see much mention of linseed oil. Chemistry, and particularly organic chemistry, on its industrial side had taken on an entirely new lease of life; progress was occurring rapidly, and in no branch of organic chemistry was the progress so rapid as in the oil and colour branch. It was a toss-up whether the application of paint and colour to surfaces would not enter upon an entirely new development, for the use of the new cellulose lacquers and artificial resins might very well, within a few years, entirely change our ideas as to protection against corrosion and as regards decoration.

Personally, he considered that the future of the oil and colour industry lay very largely in the application of synthetic organic chemistry to many of the problems.

Mr. Carr on Unity

Mr. F. H. CARR (President of the Society of Chemical Industry), who responded to the toast of "The Guests," said chemistry as a whole was very complex, and the progress of applied chemistry was dependent upon the interconnection between the various sections. Therefore, the Society of Chemical Industry did not desire the oil and colour or any other department of applied chemistry to become disconnected from the Society, because the progress of applied chemistry depended on all branches learning from each other. It was not asked that the other associations should lose their individuality in any sense; on the other hand, it was not desired to see wasted effort and unnecessary overlapping in publications on matters in which they were all concerned.

Professor H. E. ARMSTRONG, who was specially asked by the president to speak, congratulated the Association on the progress it had made since its first annual dinner, and referred to the president as a far too modest man who had rendered immense service to the industry. Personally he had been fighting the battle of white lead for a good many years and would go so far as to say that whatever they might have heard about cellulose varnish, in the end, for outside work, white lead and linseed oil would carry the day.

Sir FRANK HEATH, secretary of the Department of Scientific and Industrial Research, proposing the final toast of the evening, "The Research Association of British Paint, Colour and Varnish Manufacturers," said there was a certain sadness attaching to this occasion, because it would be the last time that he would have the opportunity of speaking as the representative of his Department. The success of that Department, however, was due entirely to the fact that its policy was directed by a body of scientific men, and he hoped this would always be the case. Referring to cellulose varnishes and synthetic resins, in connection with which, said Sir Frank, he had got into trouble in Australia, and apropos of what Professor Armstrong had said with regard to white lead, it must not be overlooked that the spraying method was already bringing its own troubles of a medical nature, and that was engaging the attention of the Medical Research Council.

Mr. S. K. THORNLEY (Chairman of the Council of the Research Association of British Paint, Colour and Varnish Manufacturers) replied to the toast, and acknowledged the great assistance that had been given to the Research Association by the Department of Scientific and Industrial Research and also by a large number of scientific men who had come forward and helped with advice and assistance. He specially mentioned Dr. Fox, Professor Lowry, Dr. H. H. Morgan, Dr. Morrell, and Mr. Klein in this connection. He expressed the hope the time would come when some of the nice things said with regard to the Oil and Colour Chemists Association would be said of the Research Association. The Association wanted more members, although as compared with most other associations formed in the same way he thought it was getting

along very well. There was an assured income of about £5,500 per annum, and they would all appreciate the fact that in the early stages there were bound to be very heavy overhead charges. Perhaps out of the first £4,000 subscribed, half would be required for rents, rates, taxes, and equipment, leaving only £2,000 for salaries of staff. After these items were met, however, every £1,000 would be spent in getting the best men and the best brains possible, and that was why it was so very important to increase the income.

Among those present at the dinner, in addition to the above-mentioned, were Mr. Clive Cookson, Dr. J. J. Fox, Mr. R. L. Collett (Institute of Chemistry), Dr. L. A. Jordan, Professor T. M. Lowry, Dr. R. S. Morrell, Dr. J. N. Goldsmith, and Mr. C. A. Hindley, master of the Painters' Stainers' Society.

Resignation of Professor Pyman

Society of Chemical Industry: Manchester Section

THE annual meeting of the Manchester Section of the Society of Chemical Industry was held at the Textile Institute on Friday, April 1, Mr. L. Guy Radcliffe being in the chair. Dr. H. Levinstein, and Messrs. M. F. S. Choate, J. R. Hannay, W. Hubball, D. M. Paul, and F. H. Terleski were elected members of the committee.

The Hon. Secretary, Mr. A. McCulloch, presented his report of the proceedings of the Section during the year. A new feature was the holding of a meeting in collaboration with the Fuel Section of the Society and with those societies which were directly co-operating with the Fuel Section. On May 6 a joint meeting was to be held with the Fellows of the Chemical Society resident in Manchester. This was a distinct innovation, and had been arranged primarily to further the good relations which already existed between the Chemical Society and the Society of Chemical Industry. It was hoped that, in some measure, it would give support to the scheme of collaboration between the societies, whereby Fellows of the Chemical Society might read papers at the meetings of local Sections of the Society of Chemical Industry. The membership of the section was about 500.

The chairman announced that Professor F. L. Pyman, who had been persuaded to fill the chairmanship of the Section for the ensuing session, had found himself compelled to withdraw from that position, as he was about to take up an industrial post. For the same reason he had relinquished his position as Professor of Technological Chemistry at the Manchester University and the College of Technology.

Dr. Rosenhain's Address

At the ordinary monthly meeting of the section which followed, Dr. W. Rosenhain, F.R.S., Superintendent of the Metallurgy Department of the National Physical Laboratory, gave a description of the work done at the laboratory. He said that the National Physical Laboratory was established some 26 years ago as the result of the activities, first of a Committee of the British Association for the Advancement of Science, in which the late Lord Rayleigh was actively concerned, and later of a Government Committee. The laboratory was begun on a very small scale, under the management of the Royal Society, with Sir Richard Glazebrook as first director, and with a Government grant of only £7,000 per annum. It was located in the old Royal mansion—Bushey House, and the rooms of that old building were adapted to laboratory purposes as well as possible.

The purpose of the laboratory was to aid the application of science, especially of physics in all its branches, to national and industrial needs. In spite of some early opposition, based upon unfounded fears and jealousies, it rapidly made its usefulness felt, and proved of great importance during the war. Even before the war, however, it had grown so large and important that the financial responsibility was more than the Royal Society could undertake, and the transfer of financial responsibility to the Government was suggested. This was carried out at the end of the war, and the laboratory was now a part of the Department of Scientific and Industrial Research, although an Executive Committee appointed by the Royal Society still retained the scientific management. The Laboratory had now seven Departments, a scientific staff of over 130, and a total staff of over 500. The National Physical Laboratory was one of the finest organisations for scientific standardisation, testing, and research in the world.

The Artificial Silk Exhibition

Items of Chemical Interest

WHILE the exhibits at Artificial Silk Goods Exhibition, held at the Holland Park Hall this week, were concerned with finished fabrics and dress goods derived from them, the basis of the whole industry is so completely chemical in every sense that it deserves the notice of the chemical profession. The British Dyestuffs Corporation, Ltd., had an exhibit showing not only fabrics dyed with the dyestuffs manufactured by the Corporation, but also actual dye-manufacturing and using processes. In one ingenious group of apparatus the actual preparation of Icy Orange R was shown in progress; while in another the process of dyeing two colours from one bath (Icyl Blue G, which dyes viscose, and Duranol Red 2 B, which dyes cellulose acetate silk) was shown, together with the subsequent washing operation. The processes of the chemical and dyeing works are difficult to show in small space, and the British Dyestuffs Corporation deserves praise for the manner in which it is attempting to bring the public at large into closer contact with the processes of manufacture.

Icyl Colours

Of the fabrics shown, special interest attached to those dyed with the following Icyl colours: Icyl Orange R, Violet B, Blue G, and Brown G. It will be remembered that these colours are the first produced anywhere in the world which will give level results on viscose of varying affinity. A wax figure showed a lady wearing a crinoline, of which the successive tiers were dyed with Duranol colours (on acetate silk), illustrating the whole spectrum band. In another exhibit, an artificial silk fabric dyed with a Duranthrene dyestuff was boiled in a soap solution throughout the period of the exhibition to illustrate the fastness of the dye.

The Bradford Dyers' Association showed dyed fabrics. Celanese goods were displayed by the manufacturers, British Celanese, Ltd. Of interest was the stand of the British Bead Printers, "glass-printed" fabrics being shown, including a novel process of bead-effect printing (Juwella), the beads being produced from flexible glass. Yarns of all makes were on view at the stand of the British Cotton and Wool Dyers' Association, Ltd. Among the artificial silk manufacturers represented were British Visada, Ltd., and the Western Viscose Silk Mills, Ltd.

The Position of the Chemist

To the Editor of THE CHEMICAL AGE.

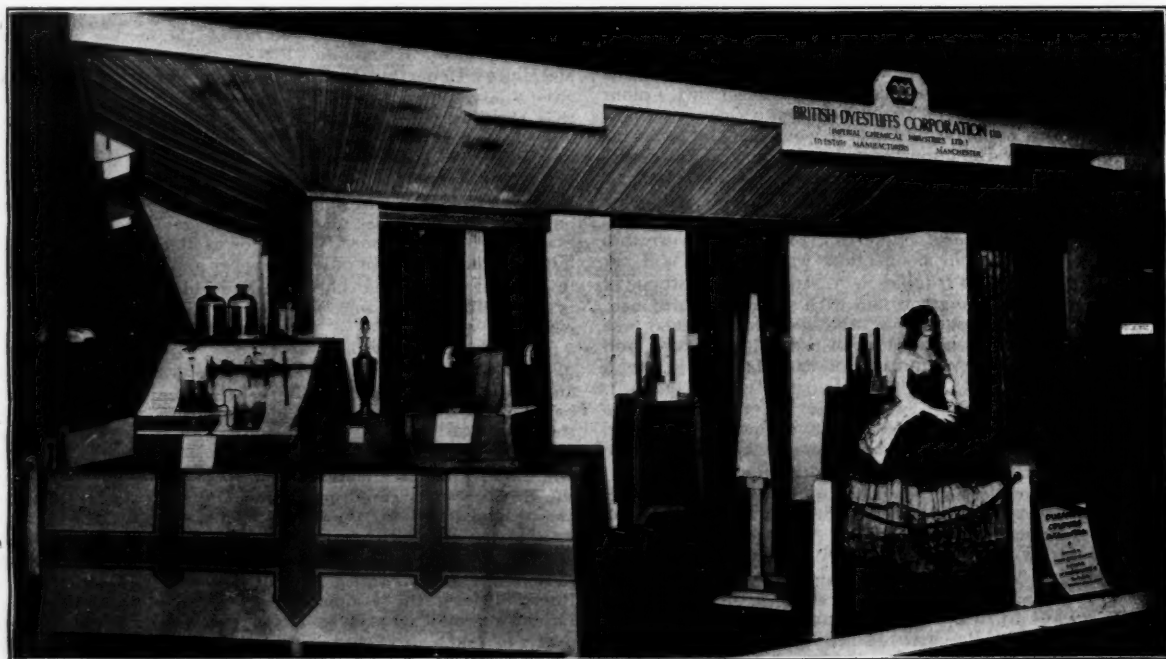
SIR,—The position of the industrial or analytical chemist is peculiar in that he has several possible societies to join. First there is the Institute, which has the largest membership, and whose Fellowship is regarded as a hallmark of competence, but it is not easily open to all chemists, particularly those chemists who graduated without high honours, or possibly have won a position or practice without a degree, and who after a lapse of years do not feel justified in restarting the examinations necessary to them for the Associateship.

Then there are at least three other societies, all of which are definitely out to improve the financial position of the chemist. These include: (1) the Union of Scientific Workers; (2) the British Association of Chemists; and (3) the National Union of Chemical Workers. All three have only a small relative membership, and it is doubtful if any of them have 15 per cent. of the available chemists in the country. Some of these societies have useful programmes of minimum salaries and conditions; but it would appear that some unification is necessary.

The Union of Scientific Workers might be left to deal with all scientists except chemists, who are already generously provided for. The two last mentioned might effect some unification, seeing their aims and policies appear to be so similar. Both are registered as trade unions, and so would seem to be the instruments for bettering the chemist's economic status. The Institute might open its doors a little wider to include all chemists with a chemistry degree, or with a responsible position, and become the registering authority for all chemists of whatever variety. Once the chemists have consolidated their position and obtained a superior status, the question of subscriptions will not be so irksome, and membership of the two big groups should be under £5 per annum. It should be possible to prevent, as in other professions and trades, overcrowding, and the average chemist must be looked after; the brilliant exception will always be able to look after himself.

Finally, every chemist should try to join the Institute and one other group, pending unification, even at some temporary sacrifice. This should be recognised as a chemist's duty, and the thing to do. Once this is accomplished success will be well on the way.—Yours, etc.,

COLORIMETER.



BRITISH DYESTUFFS CORPORATION STAND AT THE ARTIFICIAL SILK EXHIBITION.

The Late Dr. F. B. Power

A Distinguished Chemist and Pharmacist

DR. FREDERICK BELDING POWER, Ph.D., LL.D., who died on March 30, at Washington, U.S.A., will best be remembered by British pharmacists as Director of the Wellcome Chemical Research Laboratories, a position he held from the founding of the institution in 1896 until 1914. By early training a pharmacist, Dr. Power retained his interest in pharmacy throughout his life work in England, Germany, and America, and his death removes a figure of international influence in pharmaceutical and chemical research.

Born on March 4, 1853, at Hudson, New York, Dr. Power commenced his association with pharmacy at an early age. In 1874 he graduated in pharmacy at Philadelphia, and was awarded the prize in chemistry. In 1876 he was in residence at the University of Strasburg, where he took his degree in 1880 after acting as assistant to the famous Professor Flueckiger during 1879. Returning to America in 1881, he became Professor of Analytical Chemistry at the Philadelphia College of Pharmacy. Two years later, he was called upon to establish the school of pharmacy at the University of Wisconsin, where he occupied the chair of Pharmaceutical Chemistry and Materia Medica.

In 1896, at the invitation of Mr. Henry S. Wellcome, Dr. Power came to England as first director of the Wellcome Chemical Research Laboratories. In this way a close personal friendship dating from boyhood was renewed. Mr. Wellcome and Dr. Power were classmates at the Philadelphia College of Pharmacy, at which time neither could have foreseen that they would later be associated in research work for years. Under Dr. Power's direction, 168 scientific papers from the Wellcome Chemical Research Laboratories were communicated to learned societies, and during this period Dr. Power gained a wide reputation as a research chemist, particularly in the field of plant chemistry, which he made peculiarly his own. One of his most important researches was his investigation of the constituents of chaulmoogra and hydnocarpus seeds, which ultimately formed the foundation on which has been built up the modern treatment of leprosy.

In 1914 Dr. Power returned to America, where he was appointed Director of the Phytochemical Laboratory of the Bureau of Chemistry at Washington, D.C., a post he held until his death. Dr. Power's scientific work won him many honours. In 1908 the University of Wisconsin conferred upon him the honorary degree of Doctor of Laws, and in 1913 he was awarded the Hanbury Gold Medal. In appreciation of this honour, he was presented by his colleagues and associates with an illuminated address. In 1921 Mr. Wellcome, founder of the research institution bearing his name, presented Dr. Power with a gold medal bearing the doctor's profile portrait in relief and commemorative of his distinguished services to science. Dr. Power was a Fellow of the Chemical Society of London, and a Member of the corresponding societies in America and Berlin; corresponding member of the Royal Society of Pharmacy of Brussels; honorary member of the Philadelphia College of Pharmacy; vice-president of the Society of Chemical Industry, 1904-6, and he served on the council and publications committee of that society. He was awarded the Ebert Prize in 1877, 1892, and 1920. Dr. Power served on the committee of the United States Pharmacopœia, and in 1920 was elected Vice-President of the United States Convention. One of the last honours bestowed on him was his appointment, by the President of the United States, as a member of the National Research Council on the Committee of Federal Relations.

Position of German Dye Industry

In recent reports from Germany it is stated that before the war Germany's share in the world trade in dyes was approximately 88 per cent. Many of the other countries now supply the bulk of their own home demands (United States 93 per cent., United Kingdom 80 per cent., Japan and Italy 40-50 per cent.). The German exports have decreased from about 178,000 tons in 1913 to about 140,000 tons in 1926. Exports of the more expensive dyes is only about one-third of the pre-war quantity. Germany's best markets are now China, British India, Russia, and Japan, and particular attention is being paid to the Asiatic trade.

Chemical Matters in Parliament

New Sugar-Beet Factories

Mr. Guinness (House of Commons, April 4) informed Mr. Duckworth that four new beet sugar factories would be erected this year, namely, at Bardney, Selby, King's Lynn and Alscott. Of these the Bardney factory only had received guarantees under the Trade Facilities Act.

By-Products at Fuel Research Station

The Duchess of Atholl (House of Commons, April 5), for the President of the Board of Education, informed Mr. Mardy Jones that it was impossible to give reliable commercial values for the by-products obtained from coal as the result of the experiments of the Fuel Research Board, until they had been available for purchase in large quantities over an extended period. During 1926, she said (in answer to further questions), the amount of coal used by the Fuel Research Board amounted to 1,541 tons of nuts; 2,501 tons of run of mine; and 518 tons of smalls.

"C.A." Queries

We receive so many inquiries from readers as to technical, industrial, and other points, that we have decided to make a selection for publication. In cases where the answers are of general interest, they will be published; in others, the answers will simply be passed on to the inquirers. Readers are invited to supply information on the subjects of the queries:—

39 (Nitrocellulose Lacquers, etc., regulations).—"I should be glad if you would let me know whether there are any regulations regarding the use of nitrocellulose lacquers and volatile solvents, not petroleum spirit. Also, whether there are any regulations affecting the use and manufacture of inflammable volatile solvents, other than petroleum spirit."

40 (Purification of Expired Air).—"I should be glad if you could direct me to any source of information dealing with the purification of expired air by removal of CO₂ and moisture. This matter is of importance where a limited amount of air is available for breathing; as, for example, in submarines. I am really seeking the actual producer of some approved equipment for this purpose and so would be pleased if you could put me in touch with such a firm."

Replies

31 (Iron Sulphide).—We are informed by J. Sherman and Co., Ltd., Downham Mills, Chesnut Road, Tottenham, London, that they are in a position to supply iron sulphide.

39 (Nitrocellulose Lacquers, etc.).—We are informed by the Factories Department of the Home Office that inquiries into the dangers from the use of nitrocellulose lacquers are now being made, and it is probable that, before long, regulations may be framed to cover the dangers. At present the dangers are being dealt with by action under Section 1 (1)(d) and Section 74 of the Factory and Workshop Act, 1901. Much, however, depends upon the kind of solvent that is used, and as the inquiry does not state what solvents are referred to, except that it is not petroleum spirit, no detailed reply can be given. Petroleum spirit is dealt with by the Petroleum Act, 1926, amending the Petroleum Acts of 1871 to 1879. In the manufacture of certain volatile solvents, the Chemical Works Regulations of 1922 would apply.

Voluntary Winding-up of Rayon Manufacturing Co.

THE Rayon Manufacturing Co., Ltd., a company registered in June, 1925, for the manufacture of artificial silk, is to be wound up voluntarily owing to the inability to meet liabilities, if shareholders pass the necessary resolution at a special meeting, on Monday next, at Winchester House. When registered, the capital of the company was £330,000. A circular to shareholders states that, owing to unforeseen difficulties, the working capital of the company has proved inadequate for its purpose and its cash assets are now insufficient to meet its liabilities as they accrue due. Proposals for the reorganisation of the company and for a guarantee of the necessary fresh capital are, it is stated, under consideration, but it is necessary to take immediate steps for the protection of assets. Sir William H. Peat is suggested as liquidator.

From Week to Week

MR. N. A. ANFIGOLOFF, F.I.C., has been appointed a Justice of the Peace for Essex.

MR. HENRY MOND has been elected to a seat on the board of Barclays Bank Ltd.

LORD LEVERHULME has been unanimously elected president of the Birkenhead Chamber of Commerce.

DR. H. S. HELE-SHAW has had conferred upon him the honorary membership of the Institution of Chemical Engineers.

MR. R. A. WILKINSON, of Halifax, at a meeting of the Bradford Textile Society at the Midland Hotel, Bradford, recently, delivered a lecture on "Slubbing Dyeing."

A FIRE BROKE out in a large shed in Woolwich Arsenal on Thursday, March 31. The shed was near to the chemical research department. Fortunately the fire was rapidly extinguished.

MR. G. W. HIMUS is shortly proceeding to France to take up duties as assistant manager and chemical engineer with Société Anonyme Vve Dumas Recye Angel, Couze et Saint Front, Dordogne.

PROFESSOR A. W. NASH, of Birmingham University, will attend the mining and metallurgical congress at Edmonton, Canada, and read a paper on the possibilities of the British Empire's oil fields.

THE CENTENARY of the invention of the friction match by John Walker, pharmacist, of Stockton-on-Tees, occurred on Thursday. The match-tips were made of a mixture of potassium chlorate and antimony sulphide made into a paste with gum and starch. The invention was not patented.

RECENT WILLS INCLUDE: Mr. E. A. Hancock, of Kepax, Worcester, colour manufacturer (net personalty £9,958), £13,407.—Mr. Thomas Murdoch, of Pendleton, managing director of John Walton, bleachers, proprietor of Walton and Murdoch, and chairman of the Employers' Federation of Bleachers (net personalty £111,121), £139,520.

DR. E. F. ARMSTRONG, proposing the toast of "The Dyers and Finishers," at the opening of the British Artificial Silk Exhibition at Holland Park Hall, London, said that the achievement with regard to artificial silk was only the forerunner of many great achievements, and he asked them to give all the encouragement they could to research work. The toast was acknowledged by Mr. H. Sutcliffe Smith.

DYERS' WAGES (in regard to the Mackenzie Award) were the subject of a meeting on Tuesday between the Joint Dyers' Executive (representing the operatives) and the Allied Association of Bleachers, Dyers, Printers and Finishers. In a joint statement issued afterwards, it was stated that the meeting arrived at no definite conclusions. The trade unions have called a conference of the Joint Dyers' Executive to report back to them.

A NEW ANÆSTHETIC, known as E107, has been produced in the laboratories of the I.G. Although it has the disadvantage that it causes certain intestinal ill-effects when not administered fresh, very favourable results have been obtained by Professor Unger in about 300 cases in which it was administered before it had a chance to decompose. Its administration is very easy, and in the cases above described recovery was much less unpleasant than in cases where ether or chloroform is used. At present the disadvantage of decomposition risks above mentioned renders it undesirable that it should be placed on the open market immediately, but the difficulty has already been obviated to some extent, and will, it is hoped, be completely removed in time.

A BIBLIOGRAPHY OF SELENIUM, entitled "Selenium: A List of References, 1817-1925," compiled by M. F. Doty (pp. 114, 65 cents), has been issued by the New York Public Library. The list contains the titles of works relating to selenium which are in the Reference Department of the New York Public Library. The number of references listed is 1,665, and they are divided into groups dealing with general works; mineralogy and crystallography; physical and chemical constants; electrical and optical properties; cells and their uses; other industrial applications; chemistry (with several sub-heads); and patents. There are indices of authors, patentees, and subjects. The value of such a publication is too obvious to need stressing.

CELLULOSE may be extracted from cornstalks by a method worked out by Dr. B. Dörner, head of the laboratories of the Royal Hungarian Railways. A group of American capitalists have bought from the inventor the American rights. Exhaustive tests show that the highest grade chemical pulp can now be made on a commercial scale from cornstalks for much less than from the same quantity of pulp from wood or cotton. It is claimed that artificial silk made by this process proved superior to that made from wood and was at least equal to that made out of cotton. Some pulp made from cornstalks by the process has had a pure cellulose content of 99.3 per cent. It takes three tons of cornstalks, as against two and a half tons of wood, to make a ton of chemical pulp, but the cost of gathering cornstalks is far less than that of gathering wood.

SYNTHETIC AMMONIUM SULPHATE to the amount of 50 tons per day is being produced by the Montecatini Co., of Milan, Italy.

MR. ROBERT RYCROFT has been appointed chief chemist at the Colwick Factory of the Anglo-Scottish Beet Sugar Corporation.

MR. GUY FINLAYSON has been appointed chemical engineer and manager to the Magnesite Syndicate, Ltd., Suramangalam, India.

CONSOLIDATED MINES OF CORNWALL, LTD., held its statutory meeting on Friday, April 1. The chairman, Mr. H. Van den Bergh, said that there was every reason to look forward with confidence to future developments.

MR. J. J. CROSFIELD, of Embley Park, Romsey, Hants, son of the founder of Joseph Crosfield and Sons, Ltd., soap and chemical manufacturers, of Warrington, has given a donation of £10,000 to the Warrington Infirmary.

THE FARADAY SOCIETY announce that they have changed their address from 13, South Square, Gray's Inn, London, W.C., to 90, Great Russell Street, London, W.C.1, as from April 1 last. The telephone number is Chancery 7230.

MR. JAMES FUERST, chairman of Fuerst Brothers and Co., is retiring after 43 years' connection with the company. His two sons, Mr. G. M. Fuerst and Mr. H. R. Fuerst, are the remaining directors, and will continue to carry on the company's business as heretofore.

SIR THOMAS HOLLAND presided on Wednesday at the annual dinner of the Institution of Mining and Metallurgy. The toast of "The Guests" was proposed by Dr. W. Cullen, and responded to by Sir Alfred Mond, M.P. The guests included Mr. R. B. Pilcher, Registrar of the Institute of Chemistry.

AT A GENERAL MEETING of the members of the Royal Institution on Monday, Sir Arthur Keith, treasurer and vice-president, in the chair, Mr. G. B. Ellis, Lady Fox, Miss M. D. Gann, Mr. Walter Heath, Sir Frederick Hopkinson, Mr. E. W. Mellor, Mr. Archibald Page, Mrs. Somerset, Sir Josiah Stamp, and Mr. Arthur Wright were elected members.

SIR MAX MUSPRATT, ex-president of the Federation of British Industries, presided (in the absence of the new president, Lord Gainford) at the meeting held between representatives of the F.B.I. and of the delegates of the General Fascist Confederation of Italian Industries, held in London on Thursday and Friday. Among the British representatives was Mr. W. J. U. Woolcock, of the Association of British Chemical Manufacturers. The object of the meeting was to discuss international trade, in view of the forthcoming Economic Conference of the League of Nations at Geneva.

APPLICATIONS ARE INVITED for the following appointments: A Ramsay Memorial Fellowship for Chemical Research, £250 plus £50 for expenses. The Secretary, Ramsay Memorial Fellowship Trust, University College, Gower Street, London. June 6.—Assistant Government Chemist for Forest Research in the Federated Malay States. £560-£35-£1,120, plus allowance. The Private Secretary (Appointments), Colonial Office, 38, Old Queen Street, London, S.W.1. April 15.—Demonstrator (man or woman) in the Chemical Department of Bedford College for Women (University of London), Regent's Park, N.W.1. £250-£300. The Secretary, May 7.

THE ROYAL TECHNICAL COLLEGE, GLASGOW, has just issued a fresh volume of its Journal (No. 3, December, 1926). The publication is a record of research work being carried out in the college by the staff and senior students. The present volume contains the following papers, among others: "The Passage of Electricity Through Dilute Solutions," by J. Porter; "Potassium Calcium Sulphate: A Study of the System $K_2SO_4-CaSO_4-H_2O$ at $0^\circ C.$," by Professor R. M. Caven and M. Rooney; "The Electrical Conductivity of Mixtures of Acids in Solution," by J. H. Cranston and J. Bell; "The Formation of Induline Dyeustuffs by the Action of Chlorine on Aniline," by W. M. Cumming and D. G. Brown; "Preparation, Resolution, and Salts of α -Phenylethylamine," by I. V. Hopper; "Resolution of α -Phenylethylamine," by I. V. Hopper and T. Ritchie; "The Activity Theory of Solution and its Application to Neutral Salt Action," by J. M'Alay; "Some Acyl Derivatives of Hydrazine," by Professor F. J. Wilson and W. Baird; "Some Physical Properties of Duralumin," by R. Hay.

Obituary

MR. JESSE CLARKSON, of Windsor Road, Chorley, aged 68. He retired in 1923 from the position of commercial manager of the Heapley Bleach and Dye Works, of Chorley, after 45 years' service with the Dacca Twist Co.

MR. D. A. GILCHRIST, who retired last month from the chair of agriculture at Armstrong College, Newcastle, at Newcastle on April 4, aged 67. His work on the economic use of phosphatic manures had a great influence on the agriculture of the country.

MR. A. G. CRYER, of Pilchers, Ltd., a prominent figure in the National Federation of Paint Manufacturers. He was elected a member of the first council of the Research Association of the British Paint, Colour, and Varnish Manufacturers at its inaugural meeting in April, 1926.

References to Current Literature

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ANALYSIS.—Recent advances in the bacteriological examination of food and water. W. G. Savage. *Analyst*, March, pp. 117-127.

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APPARATUS.—An easily constructed ultrafilter. R. S. Aitken and H. D. Kay. *Proc. Physiol. Soc. (J. Physiol.)*, March 15, pp. xxix-xxx.

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Electrometric study of the precipitation of phosphates. H. T. S. Britton. *J. Chem. Soc.*, March, pp. 614-630.

ORGANIC.—A new synthesis of oxyberberine and a synthesis of palmatine. R. W. Haworth, J. B. Koepfli, and W. H. Perkin, Jr. *J. Chem. Soc.*, March, pp. 548-554.

The nitration of benzil. 3:5:3':5'-Tetranitrobenzil. F. D. Chattaway and E. A. Coulson. *J. Chem. Soc.*, March, pp. 577-579.

PHOTOCHEMISTRY.—On the alleged retardation of certain reactions by light. A. J. Allmand and R. E. W. Maddison. *J. Chem. Soc.*, March, pp. 650-655.

The photodecomposition of chlorine water and of aqueous hypochlorous acid solutions. II. A. J. Allmand, P. W. Cunliffe, and R. E. W. Maddison. *J. Chem. Soc.*, March, pp. 655-669.

PITCH.—Pitch softening points. R. G. W. Eadie. *J.S.C.I.*, March 25, pp. 109-111T.

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Recovery of sulphur from gas. K. N. Cundall. *Chem. Met. Eng.*, March, pp. 142-147.

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The alkylation of hydroxynaphthoquinone. III. A synthesis of lapactol. L. F. Fieser. *J. Amer. Chem. Soc.*, March, pp. 857-864.

PHYSICAL.—The thermal decomposition of nitrosyl chloride. H. A. Taylor and R. R. Denslow. *J. Phys. Chem.*, March, pp. 374-382.

The thermal dissociation of iodine and bromine. T. De Vries with W. H. Rodebush. *J. Amer. Chem. Soc.*, March, pp. 556-66.

A study of the tannin-gelatin reaction. I. P. Baughmann. *J. Phys. Chem.*, March, pp. 448-457.

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PHOTOCHEMISTRY.—The photochemistry of the alkali and alkaline earth iodides. H. Stobbe and F. K. Steinberger. *Z. anorg. u. allg. Chem.*, March 14, pp. 21-45.

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French

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ELECTROCHEMISTRY.—The electrolysis of aqueous solutions of pure oxalic acid. E. Doumer. *Comptes Rend.*, March 21, pp. 747-749.

GENERAL.—Comparison of the different processes for the direct synthesis of ammonia. XIV. P. Firmin. *L'Ind. Chim.*, February, pp. 56-59.

INORGANIC.—On various compounds of europium. P. B. Sarkar. *Bull. Soc. Chim.*, February, pp. 185-189.

ORGANIC.—The constitution of the diazo-compound of 1-amino-2-naphthol-4-sulphonic acid. Battegay and J. Schmidt. *Bull. Soc. Chim.*, February, pp. 205-208.

The preparation of paradinitrobenzene. G. Chapas. *Bull. Soc. Chim.*, February, pp. 193-196.

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The action of bromine on furylacrylic acid. C. Moureu, C. Dufraisse, and J. R. Johnson. *Ann. Chim.*, January-February, pp. 5-13.

The hydrogenation of dibenzalacetone and dibenzylacetone. W. Ipatiew and Orloff. *Comptes Rend.*, March 21, pp. 751-753.

PHYSICAL.—Mutarotation and alkalinity of the medium. H. Colin and A. Chaudun. *Comptes Rend.*, March 21, pp. 749-751.

Experimental researches on the thermal properties of gas. IV. A new apparatus for the determination of the density of co-existent phases in a gas. E. Cardoso. V. New researches on the density of the co-existent phases of sulphurous anhydride. E. Cardoso and E. Sorrentino. *J. Chim. Phys.*, February 25, pp. 65-76, 77-82.

The solubility of derivatives of nitrosophenyhydroxylamine. A. Pinkus and F. Martin. *J. Chim. Phys.*, February 25, pp. 83-102.

On the limiting value of the latent heat at the absolute zero. J. J. van Laar. *J. Chim. Phys.*, February 25, pp. 115-119.

The dilatation of liquids and the heat of vaporisation. N. de Kolossowsky. *J. Chim. Phys.*, January 25, pp. 56-61.

VITAMINS.—Quantitative researches on the water-soluble vitamins B contained in yeast extracts, yeasts, and in the culture media of yeasts. L. Randoin and R. Lecoq. *J. Pharm. Chim.*, March 1, pp. 193-208.

Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Complete Specifications

266,533. DIAZOTISABLE AZO DYESTUFFS AND INTERMEDIATE PRODUCTS, MANUFACTURE OF. Chemical Works formerly Sandoz, Basle, Switzerland, and M. Boniger, 60, Fabrikstrasse, Basle, Switzerland. Application date, February 19, 1926. Addition to 252,957.

Specification No. 252,957 (see THE CHEMICAL AGE, Vol. XV, p. 34) describes the manufacture of 2¹-methyl-3¹-nitro-5¹-sulpho-1-phenyl-5-pyrazolones, 2¹-methyl-3¹-amino-5¹-sulpho-1-phenyl-5-pyrazolones, and diazotisable azo dyestuffs derived therefrom. In this invention there are employed as components 3¹-nitro-4¹-methyl-5¹-sulpho-1-phenyl-5-pyrazolones and 3¹-amino-4¹-methyl-5¹-sulpho-1-phenyl-5-pyrazolones. These are obtained by condensation of 2-nitro-4-tolylhydrazine-6-sulphonic acid with ethylaceto-acetate or ethyloxalo-acetate and hydrolysis of the products with reduction to obtain the amino compounds.

The 2-nitro-4-tolyl-hydrazine-6-sulphonic acid is obtained from the 4-amino-2-nitrotoluene-6-sulphonic acid which is obtained by partial reduction of 2:4-dinitrotoluene-6-sulphonic acid with ammonium sulphide. The 2:4-dinitrotoluene-6-sulphonic acid is obtained by sulphonation of 4-nitrotoluene followed by nitration. To obtain the dyestuffs, a tetrazo compound of the diaryl series is coupled with a 3¹-amino-4¹-methyl-5¹-sulpho-1-phenyl-5-pyrazolone, and the intermediate product thus obtained is combined with another azo component. Other methods are also given for obtaining the same diazotisable azo dyestuffs and several examples are given.

266,539. NEW HALOGEN SUBSTITUTED OXINDOL 3-ACETIC ACIDS AND HOMOLOGUES, MANUFACTURE OF. W. Carpmael, London. From Chemische Fabrik auf Actien (vorm. E. Schering), 170, 171, Mullerstrasse, Berlin. Application date, February 27, 1926.

Oxindol-3-acetic acid or a homologue is treated with the molecular quantity of a halogenating agent when substitution takes place in the aromatic nucleus and is effected without decomposition. Similar products are obtained by melting the corresponding halogen substituted isatin or oxindol aldehyde with malonic acid, and treating the product with a reducing agent. These compounds are employed in the manufacture of pharmaceutical products and examples are given.

266,561. AZO DYES. British Dyestuffs Corporation, Ltd., 70, Spring Gardens, Manchester, and K. H. Saunders and H. Goodwin, Crumpsall Vale Chemical Works, Blackley, Manchester. Application date, April 17, 1926. Addition to 242,061.

Specification No. 242,061 (See CHEMICAL AGE, Vol. XIII, p. 580) describes azo dyestuffs for printing on cotton with chrome mordants. The first component employed is the diazo compound obtained from a 1-amino-2-oxy-3-carboxynaphthalene-6-sulphonic acid and the second components are pyrazolones. It is now found that the above diazo compound will combine with those mono- and di-oxy-naphthalene sulphonic acids containing at least one free coupling position which can be coupled with diazo compounds, particularly those derived from α -naphthol such as chromotropic acid (1:8-dioxynaphthalene-3:6-disulphonic acid) and dioxy-S-acid (1:8-dioxynaphthalene-4-sulphonic acid).

265,126. PURIFICATION OF IMPURE SOLUTIONS OF CAUSTIC SODA OR THE LIKE ON OSMOTIC PRINCIPLES. L. Cerini, Castellanza, Milan, Italy. International Convention date, January 29, 1926.

The object is to obtain pure caustic soda solution from solutions containing organic substances derived from the treatment of viscose. The apparatus is of the kind consisting of a series of iron vessels having vertical partitions which divide them into communicating compartments of variable width containing the dialytic cells. Each compartment contains a variable number of diaphragms arranged vertically

in parallel and connected together at the ends to form a single conduit which communicates with the diaphragms in the adjoining compartment. Each diaphragm comprises two semi-permeable walls of cotton, linen or hemp, either in the natural state or converted into parchment by the action of acids, alkalis, or salt. The two walls are connected along their edges to form a long tubular bag open at the ends, which is kept rigid by an internal or external support. The caustic soda solution flows through in the opposite direction to the current of water.

266,771. AZO DYESTUFFS, MANUFACTURE OF. W. Carpmael, London. From Farbenfabriken vorm. F. Bayer and Co., Leverkusen, near Cologne, Germany. Application date, October 5, 1925.

Specification No. 238,683 (see THE CHEMICAL AGE, Vol. XIII, p. 332) describes the production of sulphamino-azo compounds by coupling diazo compounds with α -naphthyl sulphaminic acid, and splitting off the sulpho group while the resulting amino group can again be diazotised and coupled to form polyazo dyestuffs. In this invention, the diazo compound is coupled with an arylsulphaminic acid which couples in para position, the monoazo dyestuff rediazotised and coupled with a coupling component such as β -naphthol, an arylide of 2:3-oxy-naphthoic acid, an acylacetic acid derivative of diamino-diphenyl or diamino-ditolyl, or a pyrazolone. The dyestuffs whose several components do not contain sulphonic or carboxylic groups may be produced in substance or on the fibre, and some examples are given.

Reference is directed, in pursuance of Section 7, Sub-section 4, of the Patents and Designs Acts, 1907 and 1919, to Specification No. 238,683.

266,809. HYDROCARBONS AND CYANIDES, MANUFACTURE OF. J. C. Clancy, 839, Dunlewey Street, Asbury Park, N.J., U.S.A. Application date, December 2, 1925.

The object is to increase the yield of hydrocarbons obtained by distilling solid carbonaceous material, and to obtain cyanides. The solid carbonaceous material is distilled in contact with a molten alkali metal cyanide, and the residues are subjected to a cyanide-forming reaction to reconstitute the cyanide which was decomposed, and to form additional cyanide. The carbonaceous material may be carbohydrates, sawdust, bitumen, peat, lignite, and coal. If the residue is treated so as to separate the cyanide from the coke by filtration, the coke still contains 20-25 per cent. of the cyanide, which can only be removed by leaching. In this invention, the cyanide is not removed from the coke, but the latter is converted into additional cyanide. Finely divided coal may be mixed with petroleum, shale oil, or heavy tar oil to form an emulsion, which is pre-heated and mixed with molten cyanide, in a closed vessel. The cyanide may be of commercial purity with a melting point of about 500° C., or it may be that obtained in a previous operation. The mixture is agitated by the oil vapour, and is kept at a pressure of about 60 lb. per square inch. The proportion of coal used is about half the weight of the cyanide. The pressure is gradually reduced, and the distillation carried on at atmosphere pressure, while the temperature is raised to 700° C., the vapours evolved being condensed. The suspension of finely divided coke in molten cyanide is mixed with sodium carbonate, and nitrogen is passed through it to convert the carbon into a further quantity of cyanide at a temperature of 1,000°-1,200° C. The cyanide is contaminated with finely divided carbon, which may be filtered off, and the cyanide absorbed by it converted into ammonia by treatment with steam. The cyanide obtained may contain small quantities of other alkali and/or alkaline earth metal cyanides and sulpho-cyanides. These will lower the melting point of the cyanide, which is advantageous in the treatment of bituminous coal. The hydrocarbon oil employed acts as a carrier for the coal and regulates the distillation, while it distils over with the distillate from the coal and is recovered. Other alkalies may be employed instead of sodium carbonate, such as sodium hydroxide and bicarbonate.

(Continued on page 361)

(Continued from page 366)

- 266,820. BASIC BISMUTH SALTS OF ARYL-ARSINIC ACIDS, MANUFACTURE OF. R. W. E. Stickings, "The Rowans," Ravensbury Park, Mitcham, Surrey, and May and Baker, Ltd., Garden Wharf, Church Road, Battersea, London, S.W.11. Application date, December 5, 1925.

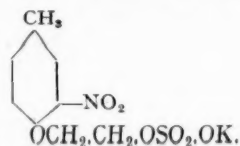
It is known that concentrated solutions of the sodium salt of 4-oxy-3-acetyl amino-phenylarsinic acid and of sodium-potassium-bismuth tartrate will react to precipitate the basic bismuth salt of the arsinic acid. In this invention, the sodium-potassium-bismuth tartrate is replaced by other salts of bismuth, and the arsinic acid by other aryl-arsinic acids. The precipitation is effected by heating in the presence of a considerable excess of the aryl-arsinic acid salt. Thus a solution of a suitable bismuthyl salt of a hydroxy polybasic acid such as tartaric acid may be added to the solution of an excess of a soluble salt of an aryl-arsinic acid. The precipitated bismuth oxy salt is washed and dried at a low temperature. The temperature of the reaction is usually about 70° C. Examples are given of the production of the basic bismuth salt of N-phenyl-glycinamide-*p*-arsinic acid, the bismuthyl-salt of *p*-aminophenyl-arsinic acid, the basic bismuth salt of 3-acetyl-amino-4-oxyphenylarsinic acid, and the basic bismuth salt of 2-oxy-5-acetyl-amino-phenylarsinic acid.

- 266,824. ORGANIC METALLIC MERCAPTO-SULPHONIC ACIDS, AND SALTS THEREOF, MANUFACTURE OF. W. Carpmæl, London. From Chemische Fabrik auf Actien (vorm. E. Schering), 170, 171, Müllerstrasse, Berlin. Application date, December 5, 1925.

Specification No. 234,806 (see THE CHEMICAL AGE, Vol. XIII, p. 133) describes the action of metallic salts on acyl derivatives of amino-mercapto-sulphonic acid. In this invention, new compounds are obtained by the action of a metallic salt on such a mercapto-sulphonic acid or a salt thereof, other than acylised amino-mercapto-sulphonic acid. In an example, the potassium salt of mercapto-benzene-sulphonic acid is obtained from the para-diazo-benzene-sulphonic acid and potassium sulphide and reducing the disulphide obtained with aluminium amalgam, and is treated with potassium auribromide to obtain the potassium salt of *p*-auromercapto-benzene sulphonic acid.

- 266,940. NEW ACID SULPHURIC ACID ESTERS OF OXYALKYL COMPOUNDS OF THE AROMATIC SERIES, MANUFACTURE OF. W. Carpmæl, London. From I. G. Farbenindustrie Akt.-Ges., Frankfurt-on-Main, Germany. Application date, May 4, 1926.

An oxyalkyl ether of a phenol, naphthol, oxyanthracene or their derivatives is treated with a sulphonating agent such as concentrated sulphuric acid or chloro-sulphonic acid. The oxyalkyl phenols can be obtained by the condensation of these salts with halogen hydrines. In an example, 3-nitro-4-oxy-1-methylbenzene is treated with glycol-chlorhydrin, and the oil which separates is shaken with sodium carbonate solution, separated, and dried. This new ether is treated with sulphuric acid, and the sulphonation mixture poured into ice water and the clear solution salted out with potassium chloride. The product is easily soluble in water and probably has the constitution—



This compound can be reduced to the amino compound, which may be diazotised and coupled with β -naphthol to obtain a bluish-red dyestuff. Alternatively the amino compound can be coupled with diazotised *p*-nitraniline to obtain a yellowish red dyestuff suitable for dyeing acetate silk. Other examples are given of the sulphonation of β -naphthyl-ethylene-glycol, the reaction of 1-hydroxy-anthracene and glycol-chlorhydrin to obtain 1-anthracyl-ethylene-glycol, which is then sulphonated, and the sulphonation of α -naphthyl- α - β - γ -trihydroxy-propane.

NOTE.—Abstracts of the following specifications which are now accepted, appeared in THE CHEMICAL AGE when they

became open to inspection under the International Convention:—243,743 (H. G. Flodin and E. G. T. Gustafsson), relating to reduction processes for producing carbon-binding metal or metal alloy, see Vol. XIV, p. 15 (Metallurgical Section); 244,120 (Farbwerke vorm. Meister, Lucius, und Brüning), relating to condensation products of the anthracene series, see Vol. XIV, p. 162; 244,413 (W. B. D. Penniman and E. J. Shackelford), relating to iron-chromium alloys, see Vol. XIV, p. 23 (Metallurgical Section); 245,129 (I. G. Farbenindustrie Akt.-Ges.), relating to manufacture of solutions, see Vol. XIV, p. 234; 249,160 and 250,576 (I. G. Farbenindustrie Akt.-Ges.), relating to dyestuffs of the triarylmethane series, see Vol. XIV, pp. 527 and 579; 250,250 (I. G. Farbenindustrie Akt.-Ges.), relating to ortho-amino-phenyl-propionic acid, its substitution products or homologues, see Vol. XIV, p. 578; 250,956 (I. G. Farbenindustrie Akt.-Ges.), relating to a non-hygroscopic pulverulent product from sulphite cellulose waste liquor, see Vol. XV, p. 34; 251,968 (I. G. Farbenindustrie Akt.-Ges.), relating to coerulein sulphonic acids, see Vol. XV, p. 88; 253,920 (H. Yoshikawa), relating to lead alloys, see Vol. XV, p. 23 (Metallurgical Section); 255,863 (I. G. Farbenindustrie Akt.-Ges.), relating to production of active colloids, see Vol. XV, p. 331.

International Specifications not yet Accepted

- 264,867. CALCIUM PHOSPHATE, AMMONIUM SULPHATE. Stockholms Superfosfat Fabriks Aktiebolag, 4, Kornhamnstorg, Stockholm. International Convention date, January 21, 1927.

Raw phosphate is treated with sulphuric acid, and the mixture of monocalcium phosphate and calcium sulphate is suspended in water and treated with ammonium carbonate. Dicalcium phosphate or tricalcium phosphate and calcium carbonate are precipitated, and ammonium sulphate remains in solution and may be recovered by evaporation. Alternatively, the monocalcium phosphate first obtained may be treated with milk of lime or limestone, and the dicalcium phosphate treated with ammonium carbonate. The reaction is effected at about 40° C. A saturated solution of ammonium sulphate may be used as carrier for the ammonium carbonate, etc. Some ammonium sulphate may remain in the precipitate, which may be used as a fertiliser.

- 265,141. ELECTROLYSIS; PERSULPHURIC ACID. Oesterreichische Chemische Werke Ges., 5, Technikerstrasse, Vienna. International Convention date, January 28, 1926.

To obtain persulphuric acid, a solution containing 500 gms. of sulphuric acid per litre is electrolysed in a diaphragm cell with a platinum anode and lead cathode at a temperature of 20-21° C. and a current strength of 400 amps. per litre. To obtain salts, the electrolyte may contain ammonium sulphate 20 per cent., sulphuric acid 2 per cent., and potassium sulphate 7.5 per cent.

- 265,167. PYRIDINE DERIVATIVES. Chemische Fabrik auf Actien (vorm. E. Schering), 170, Müllerstrasse, Berlin. International Convention date, January 27, 1926.

A 2-halogen-pyridine is treated with a dialkylamine, or an alkali compound of 2-aminopyridine is treated with an alkyl halide to obtain 2-alkylamino-pyridines. Examples are given of the preparation of 2-diethylamino-pyridine, 2-isopropylamino-pyridine, 2-allylamino-pyridine, 2-isoamylamino-pyridine, and 2-cetylaminopyridine.

- 265,169. VULCANISING RUBBER. Roessler and Hasslacher Chemical Co., 709, 6th Avenue, New York. (Assignees of G. S. Whitby, 475, Cote des Neiges Road, Montreal, Canada.) International Convention date, January 26, 1926.

Salts of xanthic acids are treated with sulphur chlorides to obtain carbalkoxy thione polysulphides for use as vulcanisation accelerators.

- 265,193. DYES. I. G. Farbenindustrie Akt.-Ges., Frankfurt-on-Main, Germany. International Convention date, January 29, 1926.

Thionaphthene is treated with phthalic anhydride in presence of aluminium chloride and carbon disulphide, and the thionaphthenoyl-benzoic acid converted into its chloride by thionyl chloride. Ring closure is effected by aluminium chloride in carbon disulphide. Phthaloyl-2-:3-thionaphthenes are obtained.

- 265,190. LITHARGE. J. J. Tardan, Bichinche, Ciboure, France. International Convention date, January 30, 1926.

A lead salt is rendered slightly acid by nitric acid or acetic acid and the lead precipitated in spongy form by means of zinc; or a solution of a lead salt and an alkaline salt is electrolysed, using a soluble lead anode to obtain a porous lead deposit. The lead is then mixed with a solution of sodium nitrate or acetate and allowed to drain on filtering material. The temperature rises to 80°-90° C., and oxidation to litharge is effected in 1-2 days.

LATEST NOTIFICATIONS.

- 268,289. Manufacture of cellulose esters. I. G. Farbenindustrie Akt.-Ges. March 24, 1926.
- 268,299. Method of treating latex and products thereof. Naugatuck Chemical Co. March 24, 1926.
- 268,301. Manufacture of zinc oxide. New Jersey Zinc Co. March 27, 1926.
- 268,302. Metallurgical operations. New Jersey Zinc Co. March 25, 1926.
- 268,316. Process for the production of metallic magnesium. Lacell, M. N. March 26, 1926.
- 268,323. Process and apparatus for the cracking of oils. Seelig, S. March 25, 1926.
- 268,325. Process of bleaching by means of oxygen. Adolph, G. and Pietzsch, A. March 29, 1926.
- 268,327. Process for dyeing fabrics containing previously immunised cotton fibres mixed with other fibres. Soc. Anon. Etablissements Petitdidier (Ancienne Maison Jolly-Belin). March 29, 1926.
- 268,363. Manufacture of artificial forms or threads fast to water and easily dyed. Soc. of Chemical Industry in Basle. March 24, 1926.
- 268,375. Manufacture of alkylated or cyclo-alkylated aryl-sulphonic acids. I. G. Farbenindustrie Akt.-Ges. March 27, 1926.
- 268,387. Preparation of emulsifying agents. I. G. Farbenindustrie Akt.-Ges. March 27, 1926.

Specifications Accepted with Date of Application

- 240,165. Colitic ores and slimes, Process for smelting. P. Gredt. September 10, 1925.
- 245,422. Compositions for alloying molybdenum with other metals. Molybdenum Corporation of America. December 30, 1924.
- 248,711. Furnaces for roasting sulphide or other ores. E. Bracq. March 9, 1925.
- 249,489. Intermediate products of the anthraquinone and anthracene series, Manufacture of, and dyestuffs therefrom. Soc. of Chemical Industry in Basle. March 18, 1925. Addition to 210,413.
- 252,029. Condensation products of the anthraquinone series, Manufacture of. I. G. Farbenindustrie Akt.-Ges. May 11, 1925.
- 252,367. Residue obtained in the reduction of molten crude phosphates, Process for utilising. I. G. Farbenindustrie Akt.-Ges. May 23, 1925.
- 252,679. Ores and metallurgical products of various kinds containing volatisable metals, Processes for working-up. F. Krupp Grusonwerk Akt.-Ges. May 26, 1925.
- 254,679. Molten carbon, Manufacture of articles from. I. G. Farbenindustrie Akt.-Ges. June 20, 1925.
- 254,691. Desulphurising fine iron pyrites, Process for. Metallbank und Metallurgische Ges. Akt.-Ges. July 4, 1925.
- 256,601. Lead and zinc from ores and metallurgical products, Processes for the extraction of. F. Krupp Grusonwerk Akt.-Ges. August 8, 1925.
- 257,622. Acetals, Manufacture of. Consortium für Elektro-Chemische Industrie Ges. August 27, 1925.
- 260,288. Aldehyde condensation, products, Manufacture of. Soc. of Chemical Industry in Basle. October 22, 1925.
- 267,590. Molten iron, Plant for the treatment of. E. C. R. Marks. (New Process Multi-Castings Co.) December 15, 1925.
- 267,681. Emulsifying apparatus. J. McGougan and J. Hunter. February 16, 1926.
- 267,687. Alloy steels, Heat-treatment of. P. R. Kuehnrich. February 19, 1926.
- 267,721. Nitric acid, Manufacture of. C. Toniolo. March 27, 1926.
- 267,722. Machines for tapping blast furnaces. B. J. Mullen. March 29, 1926.
- 267,071. Refining mineral oils with liquid sulphur dioxide, Process of. Allgemeine Ges. für Chemische Industrie. March 5, 1926.
- 267,768. Formaldehyde or paraformaldehyde, Manufacture and production of concentrated solutions of. J. Y. Johnson. (I. G. Farbenindustrie Akt.-Ges.) January 18, 1926.
- 267,776. Cracking oils and tars. Soc. Luxembourgeoise des Hydrocarbures and F. Brimeyer. July 20, 1926.
- 267,788. Titanium pigments and process of producing the same. E. C. R. Marks. (J. Irwin and R. H. Monk.) August 6, 1926.
- 267,808. Synthetic rubber, Process for the removal of liquid polymers from. W. Carpmael. (I. G. Farbenindustrie Akt.-Ges.) September 3, 1926.
- 262,042. Bringing liquid and gases into contact. Soc. L'Air Liquide Soc. Anon. pour l'Etude et l'Exploitation des Procédés G. Claude. November 28, 1925.
- 259,933. Vulcanisation accelerators, and method of making the same. Naugatuck Chemical Co. October 15, 1925.

Applications for Patents

- Angel, E. R. Manufacture of cellulose. 9,144. April 2.
- Borg, E. A. Filtration of liquids. 8,655. March 29.
- Carmael, W. (I. G. Farbenindustrie Akt.-Ges.). Manufacture of new compounds of thiazolic series. 8,789. March 30.
- Cerini, L. Purification of caustic soda, etc. 8,460. March 28. (Italy, March 26, 1926.)
- Chemisch-Pharmazeutische Akt.-Ges. Bad Homburg and Dehn, F. B. Production of solutions of basic quinine. 8,888. March 31.
- Clennell, J. E. Extraction of cobalt and nickel. 9,094. April 2.
- Colombo, M. Chambers for manufacture of sulphuric acid. 8,894. March 31. (Spain, May 6, 1926.)
- Commercial Solvents Corporation. Butyl-acetonic fermentation. 8,535. March 28. (United States, October 1, 1926.)
- Commercial Solvents Corporation. Catalysts for synthesis of methanol. 8,536. March 28. (United States, October 25, 1926.)
- Hall, A. J., and Silver Springs Bleaching and Dyeing Co., Ltd. Process for treating viscose silk. 8,716. March 30.
- Haskell, G. Manufacture of solvent for essential oils, etc. 8,463. March 28.
- Holliday and Co., Ltd., L. B., and Shaw, C. Production of dyestuffs. 8,685. March 30.
- I. G. Farbenindustrie Akt.-Ges. and Imray, O. Y. Manufacture of sulphur dyestuffs. 8,624. March 29.
- I. G. Farbenindustrie Akt.-Ges. Manufacture of new compounds of thiazolic series. 8,789. March 30.
- I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Means for production of gases. 9,133. April 2.
- I. G. Farbenindustrie Akt.-Ges. Preparation of emulsifying-agents. 8,475. March 28. (Germany, March 27, 1926.)
- I. G. Farbenindustrie Akt.-Ges. Production of conversion products of tars, etc. 8,476. March 28. (Germany, March 30, 1926.)
- I. G. Farbenindustrie Akt.-Ges. Manufacture of decomposition products, etc. 8,477. March 28. (Germany, April 3, 1926.)
- I. G. Farbenindustrie Akt.-Ges. Manufacture of diazotised amines of the cyclic series. 8,771. March 30. (Germany, March 30, 1926.)
- I. G. Farbenindustrie Akt.-Ges. Conversion of hydrocarbons of high boiling point into compounds of low boiling point. 8,890. March 31. (Germany, April 1, 1926.)
- I. G. Farbenindustrie Akt.-Ges. Internal-combustion engines. 8,891. March 31. (Germany, April 8, 1926.)
- I. G. Farbenindustrie Akt.-Ges. Precipitation of heavy metals from ammoniacal solutions. 8,892. March 31. (Germany, April 9, 1926.)
- I. G. Farbenindustrie Akt.-Ges. Process for hardening plastic masses from casein, etc. 8,922. March 31. (Germany, March 31, 1926.)
- I. G. Farbenindustrie Akt.-Ges. Manufacture of azo dyestuffs. 8,931. March 31. (Germany, March 31, 1926.)
- I. G. Farbenindustrie Akt.-Ges. Catalytic production of hydrocyanic acid from formamide. 9,002. April 1. (Germany, April 10, 1926.)
- I. G. Farbenindustrie Akt.-Ges. Manufacture of alkali bisulphate. 9,035. April 1. (Germany, April 1, 1926.)
- I. G. Farbenindustrie Akt.-Ges. Internal-combustion engines. 9,134. April 2. (Germany, April 12, 1926.)
- Kaiser, L., and Lichtenberger, T. Manufacturing finely-distributed sulphate of barium, etc. 8,607. March 29. (Germany, April 3, 1926.)
- Metallbank und Metallurgische Ges. Akt.-Ges. Treating lithium-containing silicates. 8,943. March 31. (Germany, April 22, 1926.)
- Nobel's Explosives Co., Ltd. Manufacture of detonators, etc. 9,052. April 1.
- Scottish Dyes, Ltd., and Thomas, J. Dyestuffs, etc. 9,053. April 1.
- Semet-Solvay Co. Distillation systems. 9,017. April 1. (United States, April 17, 1926.)
- Synthetic Ammonia and Nitrates, Ltd. Process of separating and recovering olefines from gases. 8,705. March 30.
- Verein für Chemische Industrie Akt.-Ges. Recovery of acetic acid from acetyl cellulose. 8,495. March 28. (Germany, April 1, 1926.)

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.
 ACID BORIC, COMMERCIAL.—Crystal, £34 per ton; powder, £36 per ton.
 ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.
 ACID NITRIC, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.
 ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations: 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.
 AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.
 BISULPHITE OF LIME.—£7 10s. per ton, packages extra, returnable.
 BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.
 BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder, £21 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)
 CALCIUM CHLORIDE (SOLID).—£5 12s. 6d. to £5 17s. 6d. per ton d/d carr. paid.
 COPPER SULPHATE.—£25 to £25 10s. per ton.
 METHYLATED SPIRIT 61 O.P.—Industrial, 2s. 5d. to 2s. 10d. per gall.; pyridinised industrial, 2s. 7d. to 3s. per gall.; mineralised, 3s. 6d. to 3s. 10d. per gall.; 64 O.P., 1d. extra in all cases; prices according to quantity.
 NICKEL SULPHATE.—£38 per ton d/d.
 NICKEL AMMONIA SULPHATE.—£38 per ton d/d.
 POTASH CAUSTIC.—£30 to £33 per ton.
 POTASSIUM BICHROMATE.—4½d. per lb.
 POTASSIUM CHLORATE.—3½d. per lb., ex wharf, London, in cwt. kegs.
 SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.
 SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.
 SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.
 SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.
 SODIUM ACETATE 97/98%.—£21 per ton.
 SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.
 SODIUM BICHROMATE.—3½d. per lb.
 SODIUM BISULPHITE POWDER, 60/62%.—£17 per ton for home market, 1-cwt. drums included.
 SODIUM CHLORATE.—2½d. per lb.
 SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.
 SODIUM PHOSPHATE.—£14 per ton, f.o.r. London, casks free.
 SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.
 SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.
 SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.
 SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.r. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—7½d. per lb. Crude 60's, 1s. 8d. to 1s. 9½d. per gall.
 ACID CRESYLIC 99/100.—2s. 4½d. to 2s. 6½d. per gall. Steady. 97/99.—2s. to 2s. 2d. per gall. Pale, 95%, 1s. 10d. to 2s. 2d. per gall. Dark, 1s. 9d. to 2s. per gall.
 ANTHRACENE.—A quality, 2½d. to 3d. per unit. 40%, 3d. per unit.
 ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7½d. to 8d. per gall.; both according to gravity.
 BENZOLE.—Crude 65's, 1s. 2½d. to 1s. 3½d. per gall., ex works in tank wagons. Standard Motor, 1s. 9d. to 2s. 4d. per gall., ex works in tank wagons. Pure, 2s. to 2s. 1d. per gall., ex works in tank wagons.
 TOLUOLE.—90%, 2s. 1d. to 2s. 2d. per gall. Firm. Pure, 2s. 3d. to 2s. 4d. per gall.
 XYLOL.—2s. 1d. to 2s. 2d. per gall. Pure, 3s. per gall.
 CREOSOTE.—Cresylic, 20/24%, 10½d. per gall. Standard specification, 6½d. to 9d.; middle oil, 7½d. to 8d. per gall. Heavy, 8½d. to 9d. per gall. Salty, 7d. per gall. less 1½%.
 NAPHTHA.—Crude, 9d. to 9½d. per gall. according to quality.
 Solvent 90/160, 1s. 8d. to 2s. 1d. per gall. Solvent 95/160, 1s. 8d. to 1s. 9d. per gall. Solvent 90/190, 1s. 4d. per gall.
 NAPHTHALENE CRUDE.—Drained Creosote Salts, £8 per ton. Whizzed or hot pressed, £8 10s. to £9 per ton.
 NAPHTHALENE.—Crystals, £13 10s. per ton. Quiet. Flaked, £12 10s. per ton, according to districts.
 PITCH.—Medium soft, 90s. to 95s. per ton, according to district; nominal.
 PYRIDINE.—90/140, 9s. 6d. to 10s. per gall. Nominal. 90/180, 5s. per gall. Heavy, 5s. to 8s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.
 ACID ANTHRANILIC.—6s. per lb. 100%.
 ACID BENZOIC.—1s. 9d. per lb.
 ACID GAMMA.—8s. per lb.
 ACID H.—3s. 3d. per lb. 100% basis d/d.
 ACID NAPHTHIONIC.—1s. 6d. per lb. 100% basis d/d.
 ACID NEVILLE AND WINTHER.—4s. 9d. per lb. 100% basis d/d.
 ACID SULPHANILIC.—9d. per lb. 100% basis d/d.
 ANILINE OIL.—7d. per lb. naked at works.
 ANILINE SALTS.—7d. per lb. naked at works.
 BENZALDEHYDE.—2s. 3d. per lb.
 BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.
 BENZOIC ACID.—1s. 8½d. per lb.
 o-CRESOL 29/31° C.—4d. per lb. Fair inquiry.
 m-CRESOL 98/100%.—2s. 8½d. per lb. Only limited inquiry.
 p-CRESOL 32/34° C.—2s. 8½d. per lb. Only limited inquiry.
 DICHLORANILINE.—2s. 3d. per lb.
 DIMETHYLANILINE.—2s. per lb. d/d. Drums extra.
 DINITROBENZENE.—9d. per lb. naked at works. £75 per ton.
 DINITROCHLOROBENZENE.—£84 per ton d/d.
 DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.
 DIPHENYLAMINE.—2s. 10d. per lb. d/d.
 a-NAPHTHOL.—2s. per lb. d/d.
 B-NAPHTHOL.—11d. to 1s. per lb. d/d.
 a-NAPHTHYLAMINE.—1s. 3d. per lb. d/d.
 B-NAPHTHYLAMINE.—3s. per lb. d/d.
 o-NITRANILINE.—5s. 9d. per lb.
 m-NITRANILINE.—3s. per lb. d/d.
 p-NITRANILINE.—1s. 9d. per lb. d/d.
 NITROBENZENE.—6d. per lb. naked at works.
 NITRONAPHTHALENE.—1s. 3d. per lb. d/d.
 R. SALT.—2s. 2d. per lb. 100% basis d/d.
 SODIUM NAPHTHIONATE.—1s. 8½d. per lb. 100% basis d/d.
 o-TOLUIDINE.—7½d. per lb. naked at works.
 p-TOLUIDINE.—2s. 2d. per lb. naked at works.
 m-XYLIDINE ACETATE.—2s. 11d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £9 5s. per ton. Grey, £15 10s. per ton. Liquor, 9d. per gall. 32° Tw.
 CHARCOAL.—£7 to £10 per ton, according to grade and locality.
 IRON LIQUOR.—1s. 3d. per gall. 32° Tw. 1s. per gall. 24° Tw.
 RED LIQUOR.—9d. to 1s. per gall. 16° Tw.
 WOOD CREOSOTE.—1s. 9d. per gall. Unrefined.
 WOOD NAPHTHA, MISCIBLE.—4s. per gall., 60% O.P. Solvent, 4s. 3d. per gall., 40% O.P.
 WOOD TAR.—£4 to £5 10s. per ton and upwards, according to grade.
 BROWN SUGAR OF LEAD.—£41 to £42 per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6d. to 1s. 5½d. per lb., according to quality, Crimson, 1s. 3d. to 1s. 7½d. per lb., according to quality.
 ARSENIC SULPHIDE, YELLOW.—2s. per lb.
 BARYTES.—£3 10s. to £6 15s. per ton, according to quality.
 CADMIUM SULPHIDE.—2s. 9d. per lb.
 CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.
 CARBON BLACK.—5½d. per lb., ex wharf.
 CARBON TETRACHLORIDE.—£46 to £55 per ton, according to quantity, drums extra.
 CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.
 DIPHENYLGUANIDINE.—3s. 9d. per lb.
 INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5½d. to 6½d. per lb.
 LAMP BLACK.—£35 per ton, barrels free.
 LEAD HYPOSULPHITE.—9d. per lb.
 LITHOPONE, 30%.—£22 10s. per ton.
 MINERAL RUBBER "RUBPRON".—£13 12s. 6d. per ton, f.o.r. London.
 SULPHUR.—£9 to £11 per ton, according to quality.
 SULPHUR CHLORIDE.—4d. per lb., carboys extra.
 SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.
 THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb. carriage paid.
 THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.
 VERMILION, PALE OR DEEP.—5s. 3d. per lb.
 ZINC SULPHIDE.—1s. 1d. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers.

ACID, ACETYL SALICYLIC.—2s. 5d. to 2s. 6d. per lb. Firm and brisk.

ACID, BENZOIC B.P.—2s. to 2s. 3d. per lb., according to quantity. Solely ex Gum, 1s. 3d. per oz.; 500 oz. lots, 1s. per oz.

ACID, BORIC B.P.—Crystal, £41 per ton; powder, £45 per ton. Carriage paid any station in Great Britain, in ton lots.

ACID, CAMPHORIC.—19s. to 21s. per lb.

ACID, CITRIC.—1s. 4½d. to 1s. 5d. per lb., less 5%. Firm.

ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.

ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d. per lb.

ACID, SALICYLIC, B.P.—1s. 3½d. to 1s. 5d. per lb. Technical.—11½d. to 1s. per lb. Both in good demand.

ACID, TANNIC B.P.—2s. 9d. to 2s. 11d. per lb.

ACID, TARTARIC.—1s. 2d. per lb., less 5%. Firm market.

AMIDOL.—9s. per lb., d/d.

ACETANILIDE.—1s. 6d. to 1s. 8d. per lb. for quantities.

AMIDOPYRIN.—8s. 6d. per lb.

AMMONIUM BENZOATE.—3s. 3d. to 3s. 6d. per lb., according to quantity.

AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimed: lump, 1s. per lb.; powder, 1s. 3d. per lb.

ATROPINE SULPHATE.—11s. per oz. for English make.

BARBITONE.—6s. 6d. per lb.

BENZONAPHTHOL.—3s. 3d. per lb. spot.

BISMUTH CARBONATE.—9s. 9d. to 10s. per lb.

BISMUTH CITRATE.—9s. 6d. to 9s. 9d. per lb.

BISMUTH SALICYLATE.—8s. 9d. to 9s. per lb.

BISMUTH SUBNITRATE.—7s. 9d. to 8s. per lb.

BISMUTH NITRATE.—5s. 9d. to 6s. per lb.

BISMUTH OXIDE.—13s. 9d. to 14s. per lb.

BISMUTH SUBCHLORIDE.—11s. 9d. to 12s. per lb.

BISMUTH SUBGALLATE.—7s. 9d. to 8s. per lb. Extra and reduced prices for smaller and larger quantities respectively; Liquor Bismuthi B.P. in W. Qts. 1s. 1d. per lb.; 12 W. Qts. 1s. per lb.; 36 W. Qts. 11½d. per lb.

BORAX B.P.—Crystal, £24 per ton; powder, £25 per ton. Carriage paid any station in Great Britain, in ton lots.

BROMIDES.—Potassium, 2s. 4d. to 2s. 6d. per lb.; sodium, 2s. 2d. to 2s. 4d. per lb.; ammonium, 2s. 4d. to 2s. 6d. per lb., all spot.

CALCIUM LACTATE.—1s. 3½d. to 1s. 4½d.

CHLORAL HYDRATE.—3s. 2d. to 3s. 5d. per lb., duty paid.

CHLOROFORM.—2s. 3d. to 2s. 7½d. per lb., according to quantity.

CREOSOTE CARBONATE.—6s. per lb.

ETHER METH.—1s. 1d. to 1s. 11½d. per lb., according to sp. gr. and quantity. Ether purif. (Aether B.P., 1914), 2s. 3d. to 2s. 4d., according to quantity.

FORMALDEHYDE.—£39 per ton, in barrels ex wharf.

GUAIACOL CARBONATE.—5s. per lb.

HEXAMINE.—2s. 4d. to 2s. 6d. per lb.

HOMATROPINE HYDROBROMIDE.—30s. per oz.

HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.

HYDROGEN PEROXIDE (12 VOLS.).—1s. 5d. per gallon f.o.r. makers' works, naked.

HYDROQUINONE.—4s. per lb., in cwt. lots.

HYPOPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.

IRON AMMONIUM CITRATE B.P.—2s. 1d. to 2s. 4d. per lb. Green, 2s. 4d. to 2s. 9d. per lb. U.S.P., 2s. 2d. to 2s. 5d. per lb.

IRON PERCHLORIDE.—22s. per cwt., 112 lb. lots.

MAGNESIUM CARBONATE.—Light Commercial, £33 per ton net.

MAGNESIUM OXIDE.—Light commercial, £67 10s. per ton, less 2½%; Heavy Commercial, £22 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb., in 1 cwt. lots.

MENTHOL.—A.B.R. recrystallised B.P., 18s. 9d. per lb. net; Synthetic, 11s. to 12s. 6d. per lb., according to quantity; 10s. 6d. for 1 cwt. lots and upwards; Liquid (95%), 12s. per lb.; Detached Cryst., 14s. 6d. per lb.

MERCURIALS B.P.—Up to 1 cwt. lots, Red Oxide, 7s. 6d. to 7s. 7d. per lb., levig., 7s. to 7s. 1d. per lb.; Corrosive Sublimate, Lump, 5s. 9d. to 5s. 10d. per lb., Powder, 5s. 2d. to 5s. 3d. per lb.; White Precipitate, Lump, 5s. 11d. to 6s. per lb., Powder, 6s. to 6s. 1d. per lb., Extra Fine, 6s. 1d. to 6s. 2d. per lb.; Calomel, 6s. 4d. to 6s. 5d. per lb.; Yellow Oxide, 6s. 10d. to 6s. 11d. per lb.; Persulph., B.P.C., 6s. 1d. to 6s. 2d. per lb.; Sulph. nig., 5s. 10d. to 5s. 11d. per lb. Special prices for larger quantities.

METHYL SALICYLATE.—1s. 9d. per lb.

METHYL SULPHONAL.—11s. per lb.

METOL.—11s. per lb. British make.

PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder.

PARALDEHYDE.—1s. 4d. per lb.

PHENACETIN.—3s. per lb.

PHENAZONE.—4s. 6d. per lb.

PHENOLPHTHALEIN.—6s. to 6s. 3d. per lb.

POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—96s. per cwt., less 2½% for ton lots.

POTASSIUM CITRATE.—1s. 11d. to 2s. 2d. per lb.

POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.

POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb. for 1 cwt. lots.

POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London.

POTASSIUM PERMANGANATE.—B.P. crystals, 6d. per lb., spot.

QUININE SULPHATE.—2s. per oz., 1s. 8d. to 1s. 9d. for 1000 oz. lots in 100 oz. tins.

RESORCIN.—4s. per lb., spot.

SACCHARIN.—55s. per lb. Very limited inquiry.

SALOL.—2s. 4d. per lb.

SODIUM BENZOATE, B.P.—1s. 10d. to 2s. 2d. per lb.

SODIUM CITRATE, B.P.C., 1911.—1s. 8d. to 1s. 11d. per lb., B.P.C., 1923—2s. to 2s. 1d. per lb. for 1 cwt. lots. U.S.P., 1s. 11d. to 2s. 2d. per lb., according to quantity.

SODIUM FERROCYANIDE.—4d. per lb., carriage paid.

SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 5s. per ton, d/d consignee's station in 1-cwt. kegs.

SODIUM NITROPRUSSIDE.—16s. per lb.

SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—90s. to 95s. per cwt., according to quantity.

SODIUM SALICYLATE.—Powder, 1s. 9d. to 1s. 10d. per lb. Crystal, 1s. 10d. to 1s. 11d. per lb.

SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 2d. per lb.

SODIUM SULPHITE, ANHYDROUS, £27 10s. to £28 10s. per ton, according to quantity; 1-cwt. kegs included.

SULPHONAL.—7s. 6d. per lb.

TARTAR EMETIC, B.P.—Crystal or powder, 2s. 1d. to 2s. 3d. per lb.

THYMOL.—Puriss., 11s. 6d. to 12s. per lb., according to quantity. Firmer. Natural, 14s. 9d. per lb. Cheaper.

Perfumery Chemicals

ACETOPHENONE.—7s. 3d. per lb.

AUBEPINE (EX ANETHOL), 10s. 6d. per lb.

AMYL ACETATE.—2s. per lb.

AMYL BUTYRATE.—5s. 3d. per lb.

AMYL SALICYLATE.—3s. per lb.

ANETHOL (M.P. 21/22° C.).—5s. 6d. per lb.

BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—2s. per lb.

BENZYL ALCOHOL FREE FROM CHLORINE.—2s. per lb.

BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.

BENZYL BENZOATE.—2s. 3d. per lb.

CINNAMIC ALDEHYDE NATURAL.—17s. per lb.

COUMARIN.—10s. 6d. per lb.

CITRONELLOL.—14s. 6d. per lb.

CITRAL.—8s. 3d. per lb.

ETHYL CINNAMATE.—10s. per lb.

ETHYL PHTHALATE.—3s. per lb.

EUGENOL.—9s. 6d. per lb.

GERANIOL (PALMAROSA).—17s. 6d. per lb.

GERANIOL.—6s. 6d. to 10s. per lb.

HELIOTROPINE.—4s. 9d. per lb.

ISO EUGENOL.—13s. 6d. per lb.

LINALOL.—Ex Bois de Rose, 15s. per lb. Ex Shui Oil, 10s. 6d. per lb.

LINALYL ACETATE.—Ex Bois de Rose, 18s. per lb. Ex Shui Oil, 14s. 6d. per lb.

METHYL ANTHRANILATE.—8s. 6d. per lb.

METHYL BENZOATE.—4s. 6d. per lb.

MUSK KETONE.—35s. per lb.

MUSK XYLOL.—8s. 6d. per lb.

NEROLIN.—3s. 9d. per lb.

PHENYL ETHYL ACETATE.—10s. 6d. per lb.

PHENYL ETHYL ALCOHOL.—11s. per lb.

RHODINOL.—27s. 6d. per lb.

SAFROL.—1s. 6d. per lb.

TERPINEOL.—1s. 6d. per lb.

VANILLIN.—18s. 6d. per lb. Good demand.

Essential Oils

ALMOND OIL.—11s. per lb.

ANISE OIL.—3s. 1d. per lb.

BERGAMOT OIL.—30s. per lb.

BOURBON GERANIUM OIL.—12s. per lb.

CAMPHOR OIL.—67s. 6d. per cwt.

CANANGA OIL, JAVA.—30s. per lb.

CINNAMON OIL LEAF.—6d. per oz.

CASSIA OIL, 80/85%.—8s. 6d. per lb.

CITRONELLA OIL.—Java, 85/90%, 2s. 3d. per lb. Ceylon, pure, 1s. 10d. per lb.

CLOVE OIL.—6s. per lb.

EUCALYPTUS OIL, 70/75%.—2s. per lb.

LAVENDER OIL.—Mont Blanc, 38/40%, Esters, 21s. per lb.

LEMON OIL.—10s. 6d. per lb.

LEMONGRASS OIL.—4s. 6d. per lb.

ORANGE OIL, SWEET.—10s. 6d. per lb.

OTTO OF ROSE OIL.—Anatolian, 30s. per oz. Bulgarian, 70s. per oz.

PALMA ROSA OIL.—9s. per lb.

PEPPERMINT OIL.—Wayne County, 19s. 3d. per lb. Japanese, 8s. 6d. per lb. Firm.

PETITGRAIN OIL.—7s. 9d. per lb.

SANDALWOOD OIL.—Mysore, 26s. 6d. per lb.; 90/95%, 16s. 6d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, April 7, 1927.

A FAIR volume of business is reported during the past week, and on the whole business is slightly on the up grade. There are not many changes in price, but most of those which occur are in an upward direction. Export market is very quiet.

General Chemicals

ACETONE is unchanged at £57 per ton.
ACID ACETIC is in fair demand on home trade requirements, and there is a little more doing in the export markets.
ACID CITRIC.—Unchanged at 1s. 4d. per lb.
ACID FORMIC is in fair demand at £47 10s. to £48 per ton.
ACID LACTIC.—Unchanged at £43 per ton, for 50% by weight.
ACID OXALIC is in much better demand, and is quoted at £26 15s. to £30 per ton.
ACID TARTARIC is in active demand, makers' price is advanced to 1s. 2½d. per lb.
ALUMINA SULPHATE.—There is little doing, price nominally £6 2s. 6d. per ton, for high grade material.
AMMONIUM CHLORIDE is very quiet. Price nominally £19 to £20 per ton.
COPPER SULPHATE.—Unchanged at £25 per ton.
CREAM OF TARTAR is very firm. Makers' generally are sold out and the price is advanced to £96 to £97 per ton.
EPSOM SALTS.—Unchanged.
FORMALDEHYDE.—In fair demand at £41 10s. per ton.
LEAD ACETATE is quietly steady at £44 10s. for white, and £43 per ton for brown.
METHYL ACETONE.—The better inquiry is maintained. Price for highest grade is about £58 per ton.
METHYL ALCOHOL.—Unchanged at £46 to £48 per ton.
POTASSIUM CHLORATE is quiet but steady at 3½d. per lb.
POTASSIUM PERMANGANATE.—Makers' prices have advanced. Second-hand market remains unchanged at 7½d. per lb.

Latest Oil Prices

LONDON.—April 7.—LINSEED OIL firm but quiet at 2s. 6d. advance. Spot, £31 5s., ex-mill; March, £30 5s.; April, £30 7s. 6d.; May-August, £30 12s. 6d.; September-December, £31 7s. 6d.
RAPE OIL dull; crude extracted, £44 10s.; technical refined, naked, £46 10s., ex wharf. COTTON OIL quiet. Refined common, edible, £40 10s.; Egyptian crude, £34; deodorised, £42 10s.
TURPENTINE firm and 9d. to 1s. per cwt. higher. American, spot, 46s. 9d.; May-June, 47s. 6d.; and July-December, 49s. 6d.
HULL.—April 7.—LINSEED OIL.—Naked, spot and April, £30 15s.; May-August, £30 17s. 6d.; September-December, £31 5s. COTTON OIL.—Naked Bombay crude, £32 5s.; Egyptian crude, £33 5s.; edible refined, £37 5s.; technical, £36 5s.; deodorised, £39 5s. PALM KERNEL OIL.—Crushed naked, 5½ per cent., £36 15s. GROUNDNUT OIL.—Crushed/extracted, £44; deodorised, £48. SOYA OIL.—Extracted and crushed, £33 10s.; deodorised, £37. RAPE OIL.—Crude/extracted, £44; refined, £46 per ton. COD OIL.—Spot, 27s. 6d. per cwt., barrels, net cash terms ex mill. CASTOR OIL unchanged.

Nitrogen Products

Export.—During the last week the demand for sulphate of ammonia has continued quiet. On account of the large quantities required for home consumption, prices have remained firm at £10 17s. 6d. per ton, f.o.b. U.K. port in single bags. The reports from the Continent indicate that large quantities are going into consumption in almost all countries. In the United States there is very little material available for prompt delivery, but it is expected that the season will come to an end without any definite shortage.

Home.—The home demand continues quiet for this season of the year. The exceptionally wet weather has retarded the demand in several parts of the country. It is reported that the demand in Scotland is very strong, and that makers in that area are hard pressed to deliver as speedily as required.

Nitrate of Soda.—The nitrate position continues unchanged. The stocks at various European ports are being liquidated, but the stock in Chile remains high. For forward positions some low speculative offers have appeared on the market.

Calcium Cyanamide

THE present demand for this fertiliser is chiefly in connection with its use for the sugar beet crop. Inquiries for this purpose continue to be well maintained. As announced in our last issue, the price of calcium cyanamide for April is £9 16s. per ton delivered in 4-ton lots, carriage paid to any railway station in Great Britain.

POTASSIUM PRUSSATE is in good demand at 7½d. per lb.
SODA ACETATE is firm at £19 10s. per ton, to £19 15s. per ton.
SODA BICHROMATE.—Unchanged.
SODA HYPOSULPHITE.—Unchanged.
SODA NITRITE is quiet. Price £19 10s. per ton.
SODA PRUSSATE is firm at 4½d. per lb., to 4½d. per lb.
SODA SULPHIDE.—The market is rather disorganised by the recent reduction in the British makers' prices, and the tendency is very uncertain.
ZINC SULPHATE.—Unchanged.
PITCH is not in great demand. Since our last report the value has declined to 70s.-80s. f.o.b. U.K. ports, and some low figures have been spoken of for forward contracts.

Coal Tar Products

There is no great change to report in the prices of different coal tar products.
90's BENZOL is quoted at about 1s. 7d. per gallon, on rails. The last fall of 1d. per gallon in petrol has not been fully reflected by an equivalent fall in benzol. Most suppliers of the motor quality have made no change in their selling price.
PURE BENZOL is quoted at 2s. per gallon, on rails.
CREOSOTE OIL is unchanged, and is quoted at about 7½d. to 7½d. per gallon, on rails in the North, and at about 8½d. to 8½d. per gallon, in London.
CRESYLIC ACID is in good demand, and is quoted at 2s. to 2s. 1d. per gallon, on rails for the pale quality 97/99%, while the dark quality 95/97%, is quoted at 1s. 10d. to 1s. 11d. per gallon.
SOLVENT NAPHTHA is inactive at 1s. 4d. per gallon, on rails.
HEAVY NAPHTHA is unchanged at 1s. 2d. to 1s. 3d. per gallon.
NAPHTHALENES are also unchanged, the 76/78 quality being quoted at £8 5s. to £8 15s. per ton, while the 74/76 quality is worth £7 10s. to £8 per ton.

Reduction in Price of Bismuth Salts

MAY AND BAKER, LTD., announce a reduction in the price of bismuth salts. The quantity prices are as under and apply only for cash terms; smaller quantities would be charged extra.

	Under 1 cwt. s. d.	Not less than 1 cwt. s. d.
Bismuth carbonate	10 0	9 9 lb.
" citrate	9 9	9 6 "
" nitrate cryst.	6 0	5 9 "
" oxide	14 0	13 9 "
" salicylate	9 0	8 9 "
" subchloride	12 0	11 9 "
" subgallate	8 0	7 9 "
" subnitrate	8 0	7 9 "
Liquor Bismuthi P.B. in W. qts.	12 "	1s. 1d. lb.
	36 "	1s. 0d. lb.
		11½d. lb.

Price of Mercurials

MAY AND BAKER, LTD., announce a further increase in the prices of mercurials, as quicksilver is still dearer.

	Under 112 lb. s. d.	Not less than 112 lb. s. d.
MERCURY.		
Ammoniated lump B.P. (white precip.) .	6 0	5 11 lb.
" powder	6 1	6 0 "
" extra fine powder	6 2	6 1 "
Bichloride lump B.P. (corros. sub.) .	5 10	5 9 "
" powder B.P. or granular.	5 3	5 2 "
Chloride B.P. (calomel)	6 5	6 4 "
Red oxide cryst. B.P. (red precip.) .	7 7	7 6 "
" Levig. B.P.	7 1	7 0 "
Yellow oxide B.P.	6 11	6 10 "
Persulphate white B.P.C.	6 2	6 1 "
Sulphide black (hyd. sulph. cum sulph. 50 per cent.)	5 11	5 10 "

SUGAR BEET NEWS.—At a recent meeting of the Shropshire branch of the National Farmers' Union, it was announced that the building of the sugar beet factory would commence immediately. The factory will be ready in October. Efforts are being made to ensure the growth of sufficient sugar beet near Brigg to justify the erection of a sugar factory there.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.

Glasgow, April 6, 1927.

BUSINESS in the heavy chemical market has been fairly satisfactory during the past week, the amount of business placed in relation to inquiry going around being good. There are no changes in prices of any importance to record.

Industrial Chemicals

- ACID ACETIC.—98/100%, £55 to £67 per ton, according to quantity and packing, c.i.f. U.K. ports; 80% pure, £37 10s. per ton, ex wharf; 80% technical, £37 10s. per ton, ex wharf.
- ACID BORIC.—Crystal, granulated or small flakes, £34 per ton; powder, £36 per ton, packed in bags, carriage paid U.K. stations.
- ACID CARBOLIC, ICE CRYSTALS.—In good demand. On offer at about 7½d. per lb., f.o.b. U.K. ports.
- ACID CITRIC, B.P. CRYSTALS.—In moderate demand, and price unchanged at about 1s. 4d. per lb., less 5%, ex store, spot delivery.
- ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. 9d. per carboy. Dearsenicated quality, 6s. 3d. per carboy, ex works.
- ACID NITRIC, 80%.—Quoted £23 5s. per ton, ex station, full truck loads.
- ACID OXALIC, 98/100%.—In good demand, and price unchanged at about 3d. per lb., c.i.f. U.K. ports, but this price could probably be shaded for important quantities.
- ACID SULPHURIC, 144%.—£3 12s. 6d. per ton; 168%, £7 per ton, ex works, full truck loads. Dearsenicated quality, 20s. per ton more.
- ACID TARTARIC, B.P. CRYSTALS.—Again firmer at 1s. 2½d. per lb., less 5%, ex wharf, prompt shipment. Spot material very scarce.
- ALUMINA SULPHATE, 17/18%, IRON FREE.—Now quoted £5 15s. per ton, ex store, spot delivery. On offer from the Continent at £5 7s. 6d. per ton, c.i.f. U.K. ports.
- ALUM POTASH.—Lump quality quoted £8 per ton, c.i.f. U.K. ports. Crystal powder 5s. per ton less. Lump on spot £9 per ton. Crystal powder, £8 10s. per ton, ex store.
- AMMONIA ANHYDROUS.—On offer at 9½d. per lb., ex store. Containers extra and returnable.
- AMMONIA CARBONATE.—Lump, £37 per ton; powdered, £39 per ton, packed in 5 cwt. casks, delivered or f.o.b. U.K. ports.
- AMMONIA LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb., delivered, according to quantity.
- AMMONIA MURIATE.—Grey galvanisers' crystals of English manufacture unchanged at about £23 to £24 per ton, ex station. Continental on offer at about £20 10s. per ton, c.i.f. U.K. ports. Fine white crystals quoted £18 5s. per ton, c.i.f. U.K. ports.
- ARSENIC, WHITE POWDERED.—Spot material on offer at about £19 10s. per ton, ex store. Quoted £18 10s. per ton, ex wharf, prompt shipment from mines.
- BARIUM CARBONATE, 98/100%.—White powdered quality quoted £6 15s. per ton, c.i.f. U.K. ports.
- BARIUM CHLORIDE, 98/100%.—Large white crystals on offer from the Continent at £7 12s. 6d. per ton, c.i.f. U.K. ports, packed in casks. Bags 5s. per ton less. Spot material quoted £9 5s. per ton, ex store.
- BARYTES.—English material unchanged at £5 5s. per ton, ex works. Continental quoted £5 per ton, c.i.f. U.K. ports.
- BLEACHING POWDER.—Contract price to consumers £8 per ton, ex station, minimum 4 ton lots. Spot material 10s. per ton extra. Continental now quoted £7 10s. per ton, c.i.f. U.K. ports.
- BORAX.—Granulated, £19 10s. per ton; crystals, £20 per ton; powder, £21 per ton, carriage paid U.K. ports.
- CALCIUM CHLORIDE.—English manufacturers' price unchanged at £5 12s. 6d. to £5 17s. 6d. per ton, ex station. Continental quoted £3 15s. per ton, c.i.f. U.K. ports.
- COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works or £4 12s. 6d. per ton, f.o.b. U.K. ports for export.
- COPPER SULPHATE.—Spot material of English manufacture on offer at about £24 per ton, ex store. Continental quoted £23 per ton, c.i.f. U.K. ports.
- FORMALDEHYDE, 40%.—Now offered from the Continent at £38 per ton, c.i.f. U.K. ports. Spot material available at £39 10s. per ton, ex store.
- GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental now quoted £2 15s. per ton, c.i.f. U.K. ports.
- LEAD, RED.—Imported material quoted £33 10s. per ton, ex store.
- LEAD, WHITE.—Quoted £34 per ton, ex store.
- LEAD ACETATE.—White crystals quoted £42 15s. per ton, c.i.f. U.K. ports; brown about £40 5s. per ton, c.i.f. U.K. ports; white crystals on spot quoted £44 5s. per ton, ex store.
- MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store, in moderate demand.
- MAGNESIUM CHLORIDE.—Quoted £6 6s. 6d. per ton, c.i.f. U.K. ports.
- POTASH, CAUSTIC, 88/92%.—Solid quality unchanged at £27 5s. per ton, c.i.f. U.K. ports, minimum 15 ton lots. Smaller quantities 15s. per ton extra. Liquid, 50° Be, £14 10s. per ton, c.i.f. U.K. ports, minimum 15 ton lots.
- POTASSIUM BICHROMATE.—Unchanged at 4½d. per lb., delivered.
- POTASSIUM CARBONATE, 96/98%, spot material on offer at about £27 per ton, ex store. Quoted £25 10s. per ton, ex wharf, early shipment; 90/94% quality quoted £22 10s. per ton, c.i.f. U.K. ports.
- POTASSIUM CHLORATE.—Powdered quality offered from the Continent at about £23 12s. 6d. per ton, c.i.f. U.K. ports. Crystals, £2 per ton extra.
- POTASSIUM NITRATE.—Spot material on offer at £22 10s. per ton, ex store. Offered for prompt shipment from the Continent at about £21 per ton, c.i.f. U.K. ports.
- POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Quoted 6½d. per lb., ex store, spot delivery.
- POTASSIUM PRUSSIAN (YELLOW).—In good demand, and price unchanged at about 7½d. per lb., ex store, spot delivery. Offered from the Continent at 7½d. per lb., c.i.f. U.K. ports.
- SODA CAUSTIC.—Powder, 98/99%, £19 7s. 6d. per ton; 76/77%, £15 10s. per ton; 70/72%, £14 10s. per ton, carriage paid station, minimum 4 ton lots on contract. Spot material, 10s. per ton extra.
- SODIUM ACETATE.—English material quoted £22 10s. per ton, ex store. Continental on offer at about £19 per ton, c.i.f. U.K. ports.
- SODIUM BICARBONATE.—Refined recrystallised quality, £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton less.
- SODIUM BICHROMATE.—Quoted 3½d. per lb., delivered buyers' works.
- SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station; powder or pea quality, £1 7s. 6d. per ton more; alkali, 59%, £8 12s. 3d. per ton, ex quay or station.
- SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 10s. per ton, ex station, minimum 4 ton lots. Continental on offer at about £8 2s. 6d. per ton, ex wharf, prompt shipment. Pea crystals, photographic quality, of British manufacture, quoted £14 10s. per ton, ex station.
- SODIUM NITRATE.—Ordinary quality quoted £13 per ton, ex store; refined quality, 5s. per ton extra.
- SODIUM NITRITE, 100%.—Spot material now quoted £20 5s. per ton, ex store.
- SODIUM PRUSSIAN (YELLOW).—Offered for prompt shipment from the Continent at 4½d. per lb., ex wharf. Spot material on offer at 4½d. per lb., ex store.
- SODIUM SULPHATE (SALTCAKE).—Price for home consumption, £3 7s. 6d. per ton, ex works.
- SODIUM SULPHIDE.—Manufacturers advise reduction in price. 60/65% solid, £11 10s. per ton; broken, £12 10s. per ton; cakes, £12 10s. per ton; flake, £14 5s. per ton; crystals, 31/34%, £7 15s. to £8 10s. per ton, according to quality, delivered buyers' works, minimum 4 ton lots on contract. Prices for spot delivered are 5s. and 2s. 6d. per ton extra for solid and crystals respectively. Offered from the Continent at about £9 7s. 6d. per ton, c.i.f. U.K. ports; broken, 15s. per ton extra.
- SULPHUR.—Flowers, £12 10s. per ton; roll, £11 10s. per ton; rock, £11 10s. per ton; floristella, £10 10s. per ton; ground American, £9 5s. per ton, ex store. Prices nominal.
- ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton, f.o.b. U.K. ports; 98/100%, solid, on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports; powdered, 20s. per ton extra.
- ZINC SULPHATE.—Continental material on offer at about £10 10s. per ton, ex wharf.

NOTE.—The above prices are for bulk business, and are not to be taken as applicable to small parcels.

Coal Tar Intermediates

- CRUDE XYLIDINE.—1s. 10d. per lb. Some inquiries.
- ORTHO TOLUIDINE.—8d. per lb. Fair home inquiries.
- H. ACID.—3s. per lb., per 100%. Some inquiries.
- SULPHANILIC ACID.—9d. per lb. Small inquiries.
- GAMMA ACID.—5s. per lb. Small inquiries.

Manchester Chemical Market

(FROM OUR OWN CORRESPONDENT.)

Manchester, April 7, 1927.

THE demand for heavy chemical products on the Manchester market this week has been of moderate extent from the home-consuming interests, although most of the business that has been put through since last report has been for prompt or early delivery. Inquiry for shipment during the last few days has been distinctly on the quiet side, with much of it in connection with the Eastern and the Dominion markets, the demand from the Continent being particularly slow. On the whole values since last report have kept steady, although there are the usual exceptions.

Heavy Chemicals

Phosphate of soda is well held and is now being offered at about £12 15s. per ton, although there is still only a relatively limited trade being done in this material. There is a fair demand for bleaching powder and values keep steady at £8 per ton. For hyposulphite of soda there is a moderate inquiry circulating, with commercial quality showing a somewhat easier tendency at £9 7s. 6d. per ton, and photographic material currently offered at £15 2s. 6d. The demand for bichromate of soda during the past week has been of rather limited extent, and values at 3d. per lb. have receded a little. Nitrite of soda is held at round last week's level of £19 5s. per ton, but there has not been much actual business stirring. Alkali remains a firm section and meets with a fair amount of inquiry at about £6 15s. per ton. Bicarbonate of soda is only in moderate demand, but values are fully maintained at £10 10s. per ton. Saltcake is fairly steady at from £3 10s. to £3 15s. per ton, but little improvement in the call for this product has been reported during the past week. Inquiry for caustic soda keeps up at a moderately good level, and quotations are firm at from £14 10s. to £16 10s. per ton, according to quality. Sulphide of soda is on the slow side, but there has been little change in prices since last report, 60-65 per cent. concentrated solid being quoted at about £11 per ton and commercial grade at £8 7s. 6d. Prussiate of soda continues to be offered at about 4½d. per lb., but the demand for this remains relatively inactive. Inquiry for chlorate of soda is only of limited extent, but from 3d. to 3½d. per lb. is still being asked.

Bichromate of potash keeps fairly steady at about 4½d. per lb. and a quiet trade is being put through. The demand for chlorate of potash is on the quiet side, but at 3½d. to 3½d. per lb. values have not altered much. A steady call for carbonate of potash has been reported at round £25 15s. per ton. Values of caustic potash range from £28 10s. to £29 per ton, but there is only a quiet demand for this at the moment. There has been little improvement in the case of yellow prussiate of potash, current quotations for which are round 7½d. per lb. Permanganate of potash is still an easy section of the market, although no further change has taken place during the present week, B.P. material being offered at about 5½d. per lb. and commercial quality at 4½d.

Sulphate of copper keeps very firm at round £25 per ton, f.o.b., and a fair home and export demand has been reported. Arsenic is weaker again and sales of this are slow; from £16 10s. to £16 15s. per ton at the mines is being quoted for white powdered, Cornish makes. There is only a quiet trade passing in acetate of lime, and grey material is rather easy at £15 10s. to £15 15s. per ton, though brown is about unchanged at £9. Brown acetate of lead is firm at about £41 15s. per ton, with white showing a certain amount of easiness at about £43, the demand in both cases being on the slow side. Nitrate of lead is still quoted here at £39 per ton, but there is only a quiet trade being put through.

Acids and Tar Products

Oxalic acid is in relatively slow demand and the tendency of prices seems to be still easy, with from 3d. to 3½d. per lb. asked here. Tartaric acid is in moderate request and values are steady at about 1s. 2½d. per lb. The same may be said of citric acid, quotations for which continue round 1s. 4½d. per lb. Acetic acid is fully maintained at about £37 per ton for 80 per cent. commercial grade and £67 for glacial, and a fair inquiry is reported.

The tendency of pitch is still rather easy, demand being slow

at about £4 per ton. Creosote oil, however, remains steady and is in fair inquiry at 7½d. to 7½d. per gallon. Carbolic acid is firm and in steady demand at about 7½d. per lb. for crystal and 2s. 3d. per gallon for crude material. Solvent naphtha is very slow and weak at 1s. 4½d. per gallon.

British Dyestuffs Corporation Meeting

At the ordinary general meeting of the British Dyestuffs Corporation in Manchester on Wednesday, Lord Ashfield (chairman) was unable to attend, and his speech reviewing the developments of the year was read by Lord Colwyn (deputy-chairman). "I cannot conclude," it was stated in the closing paragraph, "without expressing to our managing director and the technical and commercial staffs, and through them to all our workpeople, our appreciation of the loyalty and devotion with which the interests of your company have been served during a most trying period, and our confidence that they will all continue the same ungrudging and untiring service under the new and, as we all hope, more favourable conditions in the future. To their skilful and untiring efforts no small share of our success is due, and I am sure that you would wish to join with your board in an expression of thanks to them. I am confident that the new conditions will give them wider opportunities for the exercise of their talents, and better chances of achieving individual success."

The report and accounts were adopted, and a dividend was declared at the rate of 2½ per cent. per annum (less tax) for the nine months to December 31, 1926.

Honour for Dr. J. W. Mellor

DR. J. W. MELLOR, Principal of the Pottery Department of the North Staffordshire Technical College, was entertained at luncheon by the Council of the North Staffordshire Chamber of Commerce on Wednesday, March 30, in recognition of his nomination as a Fellow of the Royal Society. Dr. Mellor was born in Yorkshire, brought up in New Zealand, and his principal work has been in connection with the science of the pottery industry. Sir Francis Joseph, who presided, observed that Dr. Mellor had brought to his work an original mind and an immense power of application. He was the Secretary of the Ceramic Society and Director of the British Refractories Research Association, but his chief claim on the goodwill of the Royal Society was his authoritative and standard work—a "Treatise on Inorganic Chemistry," of which eight volumes had been published—several in foreign languages—and two other volumes were practically completed. He believed Dr. Mellor contemplated that the work would extend to 13 volumes. Business men, Sir Francis Joseph added, were paying increasing attention to the value of scientific research as an adjunct to their businesses, and North Staffordshire owed much to men who had laboured on the technical side of the pottery industry.

Sir John Cass Metallurgical Society

THE annual dinner of the Sir John Cass Metallurgical Society was held at the Comedy Restaurant, Haymarket, on Saturday, March 26, the president of the society, Dr. O. F. Hudson, being in the chair, supported by the principal and head of the Metallurgy Department, Mr. G. Patchin, A.R.S.M., and the officers of the society. The chief of the many guests was Sir Frederick Black, K.C.B., vice-chairman of the Governors of the Institute, who proposed the toast of "The Society and the Department of Metallurgy." He paid a tribute to Mr. Patchin, with whose name the toast was coupled. Responding, Mr. Patchin referred to the valuable work of Sir Frederick during the war and on the board of governors.

Safeguarding of Key Industries

THE Board of Trade give notice that representations have been made to them under Section 10 (5) of the Finance Act, 1926, regarding the article urea. Any person desiring to communicate with the Board of Trade with respect to the above-mentioned application should do so by letter addressed to the Principal Assistant Secretary, Industries and Manufactures Department, Board of Trade, Great George Street, S.W.1, within one month from the date of this notice (April 6).

Company News

BROKEN HILL SOUTH.—A dividend at the rate of 1s. 6d. and a bonus of 6d. has been declared, payable on May 18.

BABCOCK AND WILCOX, LTD.—A final dividend of 8 per cent., free of tax, is announced, making 13 per cent., free of tax, for the year.

BURMAH OIL Co.—The directors have resolved to pay on April 13 half-yearly dividends on the various preference shares, less tax, at 2s. 5d. in the £.

MASON AND BARRY.—The directors recommend a dividend for 1926 of 12½ per cent., carrying forward £21,442. The distribution for 1925 was 10 per cent., and £17,040 was carried forward.

THARSIS SULPHUR AND COPPER Co.—For the year 1926 the net profits were £52,534, and £121,988 was brought forward. A dividend of 3s. per share is proposed, carrying forward £99,522. The profits for 1925 were £90,688, but there was no distribution.

ALIANZA NITRATE Co.—The gross profit for the year 1926 is stated to be £29,900, and the net loss was £34,200, against a gross profit of £196,348, and a net profit of £76,695 respectively for 1925. It has been decided to pay no dividend, and the balance of £171,700 will be carried forward.

RECRUIT AND SONS.—A final dividend of 1s. 9d. per ordinary share has been declared, making a total dividend for the year of 4s. per share, the same as for 1925. The sum of £250,000 was placed to reserve, and £80,000 was allocated as an employees prosperity bonus, £23,935 being carried forward.

LEVER BROS., LTD.—The balance of £4,899,966 standing to the credit of profit and loss account of Lever Brothers, Ltd., for the year ended December 31, 1926, after charging debenture interest £463,465, and after making ample provision for depreciation, has been appropriated in the payment of fixed dividends, amounting to £4,895,530, and carrying £4,438 to reserve fund. No dividend is to be paid on the ordinary.

MAJOR AND Co.—Dividends have been declared on the 6 per cent. cumulative preference shares for the year ended March 31, 1927, but the directors state that the financial position of the company does not permit payment of dividends on any other class of share. It is intended that proposals for a scheme to reorganise the capital will be put forward at an early date, and the directors intend to consult representatives from each class of shareholders.

NITRATE RAILWAYS Co., LTD.—The directors of the Nitrate Railways Co., Ltd., resolved, at their meeting on Wednesday, to recommend at the annual general meeting of the company shortly to be held, that, subject to final audit on the accounts, a final dividend of 1½ per cent., i.e., 3s. per share, be declared on the ordinary (unconverted) shares, making a total dividend for the year 1926 of 3 per cent., less income tax, and a final dividend of 1½ per cent., i.e., 3s. per share, on the preferred converted ordinary shares, making a total dividend for the year 1926 of 3 per cent., less income tax. Last year the ordinaries received a total dividend of 10 per cent. There was also a scrip bonus of 75 per cent.

UNITED GLASS BOTTLE MANUFACTURERS.—The report for the year ended December 31, 1926, states that profits, after providing for depreciation, income tax, payment of debenture interest, and after adding interest on investments, amount to £39,709, to which is added net balance brought forward of £41,353, and also provision for taxation, etc., not now required, £17,102, making £98,164. The directors have transferred to special depreciation in respect of capital reorganisation a further amount of £15,000 and to staff benevolent fund £3,557, and have, since December 31 last, applied in payment of final dividend for the half-year ended December 31, 1926, on preference shares at rate of 7½ per cent. per annum, less tax, sum of £17,993, leaving a balance of £43,621 to be carried forward. The annual meeting will be held at 40-43, Norfolk Street, London, W.C., on April 21, at 2.30 p.m.

RIO TINTO Co., LTD.—The full report of the directors for the year ended December 31, 1926, which became available on Monday, states that after deducting taxes, cost of administration, hospitals pensions and other expenses from the profit on sales of produce and other revenue credits, there

remains a balance on the revenue account of £1,191,045, and the balance brought forward from 1925 was £481,153, making a total of £1,672,198. There has been added to reserve fund £500,000, leaving £1,172,198. After allowing for the dividend on the preference shares for the year, the directors recommend a final dividend of 30s. per share on the ordinary shares, making a total distribution of 50s. for the year, carrying forward £153,448. The annual meeting will be held at 3, Lombard Street, London, E.C., on April 13, at 12.30 p.m.

BENZOL AND BY-PRODUCTS, LTD.—The report for the year ended September 30, 1926, states that during the year under review the trade of the country suffered from the effects of a general strike, and the coal trade in particular from five months' stoppage in coalfields. After making full allowance for depreciation, management, and all other expenses, the result of trading shows a loss of £12,097. The amount brought forward was £12,111. After adding thereto £1,059 written back from income-tax reserve, increases figure to £13,170. After deducting the above-mentioned loss, and £521 transferred to sinking fund account, there remains a profit of £553, which is being carried forward to the next account. Since the settlement of the coal dispute in November last the trade has considerably improved, and the directors felt able to recommend the payment on April 1, 1927, of one year's arrears of dividend of 6 per cent. on the preference shares.

New Chemical Trade Marks

Applications for Registration

This list has been specially compiled for us by Gee & Co., Patent and Trade Mark Agents, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to April 23, 1927.

"IZALMINT."

477,770. Class 3. Chemical substances prepared for use in medicine and pharmacy. Newton Chambers and Co., Ltd., Thorncliffe Ironworks and Collieries, near Sheffield; manufacturers. February 14, 1927. (To be Associated. Sect. 24.)

"FULTROL."

473,914. Class 4. Colloidal clay, for use as a decolorising, bleaching, filtering, purifying and absorbing medium. Filtrol Co. (a corporation organised and existing under the laws of the State of Nevada, U.S.A.), A. G. Bartless Building, 215, West 7th Street, Los Angeles, California, U.S.A.; manufacturers. October 15, 1926.

"WIZARD."

477,902. Class 6. Mixing and agitating machines for mixing chemical substances. Norman Evans and Rais, Ltd., 50, Ellesmore Street, Hulme, Manchester; importers and exporters. February 16, 1927.

"AVIROL."

476,298. Class 1. Chemical substances for use in the dyeing industry. H. Th. Bohme Aktiengesellschaft (a joint stock company organised under the laws of Germany), 29, Moritzstrasse, Chemnitz, Germany; manufacturers. December 31, 1926.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

ACETONE.—The Director-General, India Store Department, Branch No. 10, Belvedere Road, Lambeth, London, S.E.1, invites tenders for 500 cwt. of acetone, commercial, by May 17. Specifications and forms of tender obtainable from the above at a fee of 5s. per set, which will not be returned.

ASPHALTE PAVING.—The Municipality of Prague is inviting tenders for the asphaltting of various streets for an approximate area of 24,530 square metres. (Reference B.X. 3,397.)

A RECORD BREAKER THE NEW Masticator "MIRACLE"

Three
Machines
in One



GRINDER
DRESSER
ELEVATOR

We have recently received the following testimonial, which speaks for itself.

S. P. Mumford & Co., Ltd.,
Greenwich Flour Mills, London, S.E.10.
2nd March, 1927.

Messrs. Mayhew, Ramsay & Co., Ltd.
Dear Sirs,

We have now had the new type Masticator Miracle Mill running for several months and we wish to inform you that it is giving us every satisfaction, and is a great improvement over the old type.

By comparison the new type takes approximately one-third less power for grinding the same amount of material, which, of course, is a great advantage.

In any future machines that we order from you we shall certainly stipulate that they should be fitted with this new type of Masticator.

Yours truly, S. P. MUMFORD & CO., LTD.

THE NEW CAST-STEEL MASTICATOR MIRACLE
can be seen at any time at our Demonstration plant
15, EMERSON ST., SOUTHWARK, LONDON, S.E.1

MAYHEW, RAMSAY & CO., Ltd., 11, Victoria Street, London, S.W.1

Phone: Victoria 0824

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

BEATALL LUBRICANT CO., Bee Hive Mill, Darwen, oil refiners. (C.C., 9/4/27.) £11 19s. 8d. February 17.

TAYLOR, J. AND J., AND CO., 3, 5, 7, Seddon Street, Liverpool, paint manufacturers. (C.C., 9/4/27.) £15 2s., February 11; £15 1s. 7d., February 18; and £14 12s. 4d., February 18.

WOODBROOK DRUG CO., Vale Place, Merridale Street, Wolverhampton. (C.C., 9/4/27.) £17 0s. 4d. February 2.

Mortgages and Charges

[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.]

DEKA CO., LTD., Manchester, manufacturers of chemical products. (M., 9/4/27.) Registered March 21, £2,000 charge, to Clayton Rubber Co., Ltd., Croft Street, Clayton; charged on land and buildings in Clayton, with plant, etc.

DOVEY VALLEY SILICA SYNDICATE, LTD., London, E.C. (M., 9/4/27.) Registered March 23, £250 debentures, part of £5,000; general charge. *Nil. December 31, 1925.

HOLMES (FREDK. G.) AND CO., LTD., Northfleet, tar distillers. (M., 9/4/27.) Registered March 21, £2,635 4s. 9d. equitable mortgage, to Croydon Gas Co.; charged on land at Swanscombe. *Nil. December 29, 1926.

Satisfaction

CUIRASS PRODUCTS, LTD., London, S.W., manufacturers of tar products. (M.S., 9/4/27.) Satisfaction registered March 23, all moneys, etc., registered July 28, 1924.

London Gazette, &c.

Companies Winding Up Voluntarily

ALBION SHELLAC CO., LTD. (C.W.U.V., 9/4/27.) A. Richmond, 73, Basinghall Street, London, E.C.2, appointed liquidator, March 23. Meeting of creditors at liquidator's office on April 11, at 2.30 p.m.

ALEXANDERS (GLASGOW), LTD. (C.W.U.V., 9/4/27.) At an extraordinary general meeting of the shareholders, held at the registered office of the company, 166, Buchanan Street, Glasgow, on March 14, the following special resolution was duly passed; and at a subsequent extraordinary general meeting on March 29, was duly confirmed: That Alexanders (Glasgow), Ltd., be wound up voluntarily, and that George Heggie Steven, Chartered Accountant, Glasgow, be appointed liquidator for the purposes of such winding-up. Notice is given that a meeting of the creditors will be held within the office of the liquidator, 187, West George Street, Glasgow, on Friday, April 15, 1927, at 12 noon. The meeting of creditors is held to comply with the provisions of the Companies (Consolidation) Act, 1908. All creditors of the company have been, or will be, paid in full.

SHELLAC BLEACHERS, LTD. (C.W.U.V., 9/4/27.) A. Richmond, 73, Basinghall Street, London, E.C.2, appointed liquidator, March 23. Meeting of creditors at liquidator's office, on April 11, at 3 p.m.

Notice of Intended Dividend

HADDOCK, John, 77, Whitehall Road, West Bromwich, manufacturing chemist. Last day for receiving proofs, April 21. Trustee, C. Houlst, Official Receiver, 191, Corporation Street, Birmingham.

Partnership Dissolved

ROLLESTON AND CO. (John Robert DICKIN and George Edward ROLLESTON) soap manufacturers, Vroncysyllte, Llangollen, Denbigh, by mutual consent as from March 28, 1927. Debts received and paid by G. E. Rolleston, who continues the business.

New Companies Registered

JOHN DAVIS AND CO., LTD. Registered March 30. Nom. capital, £10,000 in £1 shares (7,000 5 per cent. cumulative preference and 3,000 ordinary). To acquire the business of a dyer carried on by J. Davis as "John Davis and Co.," at Ribblesden Dye Works, Holmfirth, Yorks, together with the lands, works, etc. Directors: J. Davis, Royd Top, Holmfirth; R. O. Pott.

GREASES (SOUTH AFRICA), LTD. Registered as a "private" company on April 1. Nom. capital of £5,000 in £1 shares. Producers and manufacturers of and dealers in candles, night lights, oils, greases, glycerine, soap and other articles for lighting, heating, cleansing, or lubricating purposes, etc.

NITRATE PROCESSES, LTD. Registered March 31. Nom. capital, £5,000 in £1 shares. To adopt an agreement with the holders of prior lien debentures of Chas. Butters and Co., Ltd., the holders of 8 per cent. debentures of same company, various lenders to the same company, and Chas. Butters and Co., Ltd., to carry on the business of financiers, and that of manufacturers and sellers of all kinds of patented or unpatented machinery, importers and exporters, contractors, mining, metallurgical, mechanical, electrical, and water supply engineers, etc. A subscriber: D. A. Smith, 2, Clifton Place, London, W.2.

OZONE CHEMICAL CO., LTD. Registered March 31. Nom. capital, £4,000 in £1 shares. To acquire the business of a manufacturer of and dealer in disinfectants and disinfecting materials carried on by S. Stonier at Coppice Road, Talke, Staffs, as "Samuel Stonier and Son." Directors: S. Stonier, Coppice Road, Talke, Staffs, and J. Tittley.

RESIDUAL COTTON SEED FIBRES, LTD. Registered March 30. Nom. capital, £35,000 in 10,000 8 per cent. cumulative preference and 22,500 ordinary shares of £1 each, and 50,000 deferred ordinary shares of 1s. each. Manufacturers, producers or obtainers of fibre, husks, and other by-products or materials from cotton seeds, etc.; preparers, dyers, or colourers of any such substance, and manufacturers of and dealers in cellulose of all kinds, and of substances and materials made therefrom or in combination therewith, such as paper, artificial silk, explosives, celluloid, collodion, cellulose acetate, artificial leather, viscose, xylonite and other cellulose derivatives, etc. A subscriber: A. P. Barker, 2, Raymond Buildings, Gray's Inn, London, W.C.

VITIZA FERTILISERS, LTD., 110, Victoria Street, Westminster, S.W.1. Registered March 31. Nom. capital, £1,000 in £1 shares. Manufacturers of artificial, chemical, and other manures, and soil fertilisers, etc. Directors: A. B. Kensington, Mrs. Rose Kensington, and A. H. Stuart.

Powder Mills Explosion Unexplained

A CORONER'S jury on Saturday, April 2, returned a verdict of accidental death at the inquest on Dennis Batchelor, 29, single, and Frank Scott, 29, married, who lost their lives in an explosion at the Leigh Powder Mills. The jury added there was no evidence to show the origin of the accident, and that no blame attached to the company. Evidence was given that at the time of the accident the two men were engaged in drying a smokeless powder composition of gun cotton and barium nitrate. By ordinary handling there was no risk of an explosion, and the material had been treated at the factory for twenty years without mishap. Major Crozier, Chief Inspector of Explosives, said he could form no theory of the accident. Up to the present they had never had any experience of the composition handled by the men having caught fire.

